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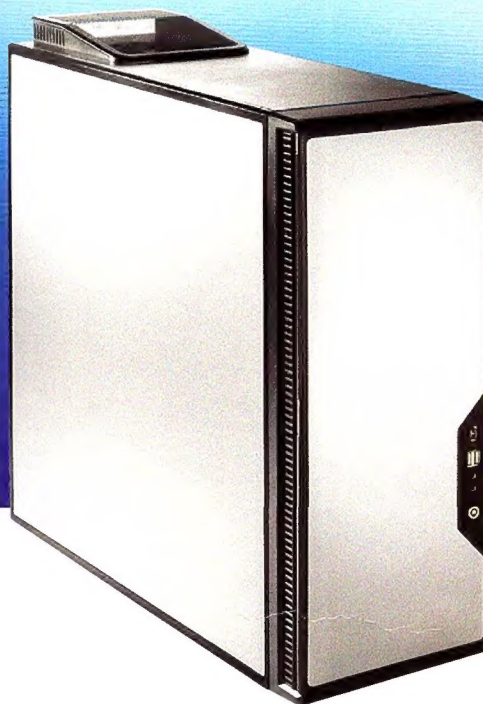
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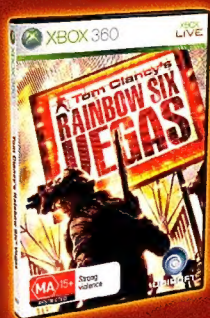
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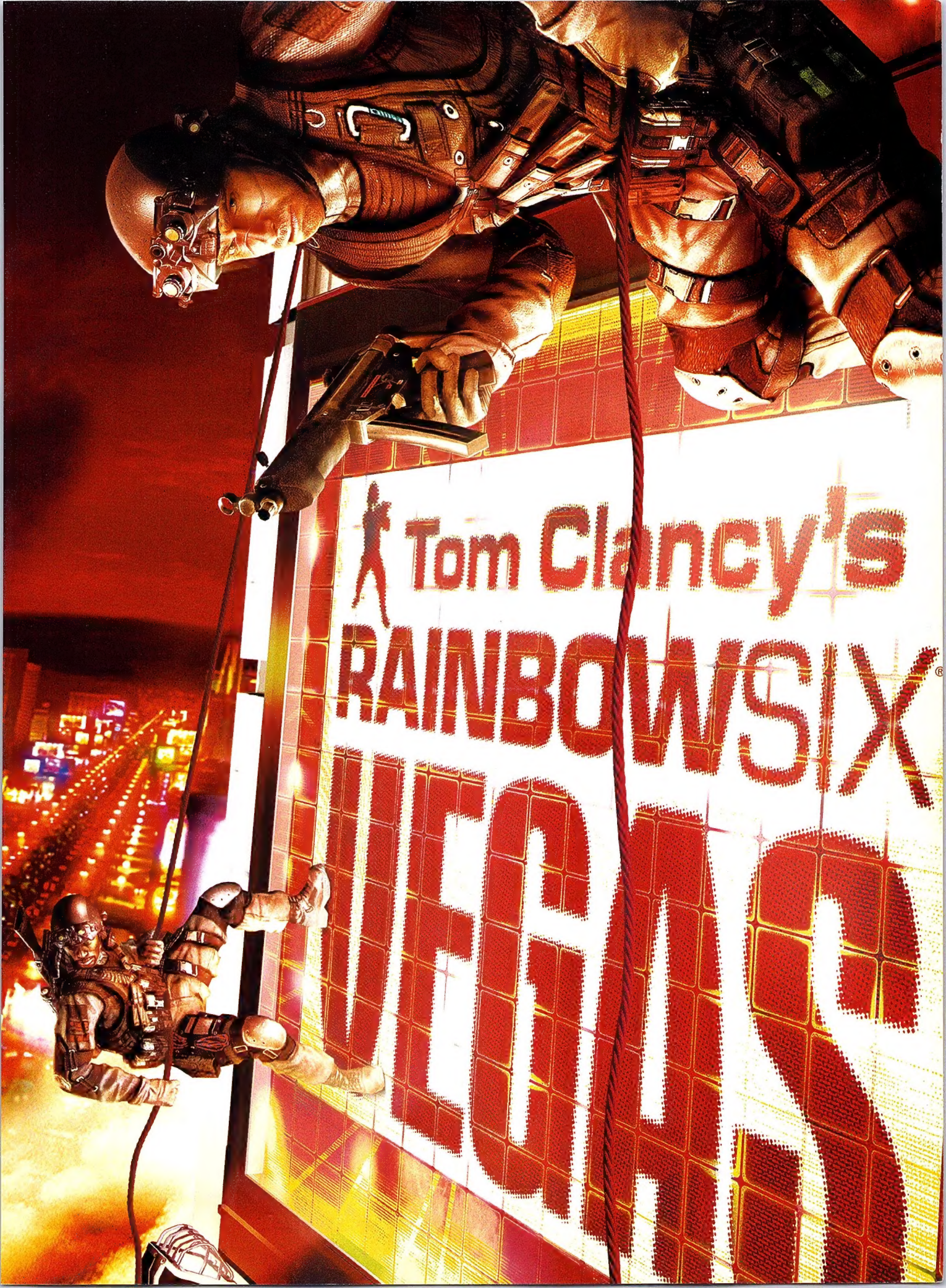
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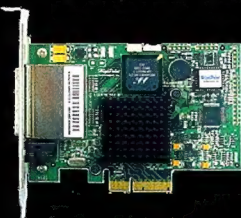
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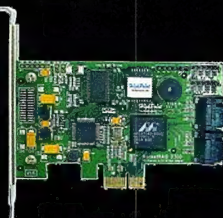
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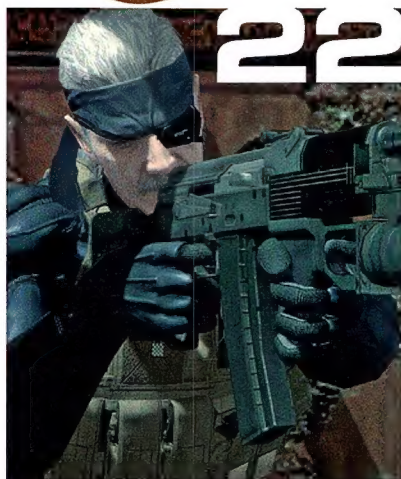
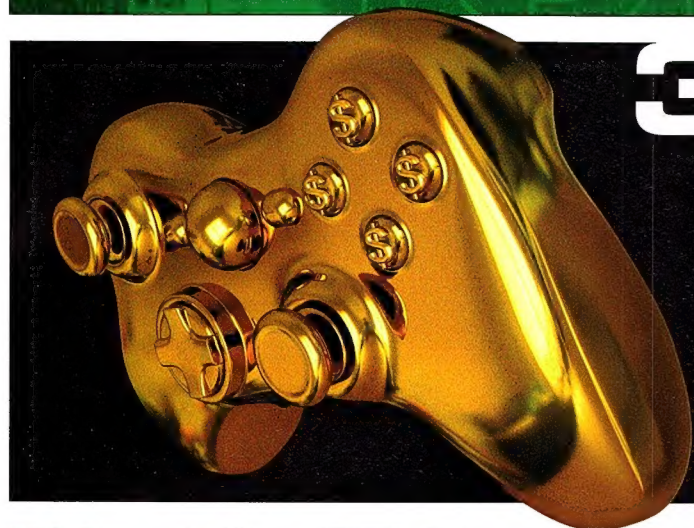
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10x copies of Dark Messiah: Heroes of Might and Magic to be won!

All you have to do is sign up for the weekly *Atomic* newsletter. Just whack your email address in at www.atomicpc.com.au/newsletter.asp and you'll be in the draw! Please see the *Atomic* website for terms and conditions.



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LOGIN

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CORRECTION

In issue 70, we listed Dynalink as the supplier of the RTA1025W ADSL router modem in our Head to Head roundup. In actual fact, the supplier was Anyware (www.anyware.com.au). We apologise for any inconvenience caused.

EDHEAD

Cash bandits

When I first started playing games, I didn't have any aspirations. Heck, I didn't know what the word 'aspiration' meant. I also didn't know what 'toilet' meant, but that's a story for another editorial.

Gaming has transformed in many ways over the last decade. It has stopped being geek niche and has become, dare I say it, popular. So popular, in fact, that smart people have found ways of making money from this once cupboard-bound pastime.

Pro-gaming. Development. Trading virtual goods. Journalism. All present paths one can take to make a buck from games. Perhaps the hardest part is knowing how exactly to go down these paths, a task we set out to conquer this issue with the help of Seamus Byrne. Seamus is an incredibly bright lad, and he managed to chase down a few people who have made it big in games. So, if you've ever contemplated turning pleasure into pennies, our guide is the best place to start.

One word we do know the meaning of is 'budget'. Although at *Atomic* we like to cover the best of the best, the fastest of the fastest, the most explosive of the explosive, we also understand that not everyone has billions to spend on a video card. With this in mind, brave Craig lured 12 mainstream,



affordable graphics cards into labs, tied them down to a test bench and made them cry. And cry they did – big, silicon tears that hit the labs floor like globules of hot wax. The end result was a frenzy of charts so complete economists everywhere quiver in their presence. If you want to buy a new graphics card, but don't have oodles to spend, then turn to page 45 and start reading.

We also sent David Kidd to the Tokyo Game Show to track down the latest gossip on the PlayStation3. It's not actually gossip, as the info came straight from Sony HQ. It sounds more scandalous if we call it gossip though. If you'd like to hear all the, er, gossip, turn to page 22 and read your heart out.

Christopher Taylor tracked down the companies behind advertising in games. He chatted to Massive, Doubler Fusion and IGA on their technology and methods, and sussed out all there is to know about sticking ads into our precious games. If this interests you, as indeed it should, then read Chris' wise words on page 29.

Finally, Leigh Dyer figured out how to encode video in Linux (it's actually not that hard) and Ron Prouse put the finishing touches on his car radiator mod. You can check these tutorials out on pages 90 and 92, respectively.

It's an action-packed *Atomic*. And by that, we mean there's a lot to read, not that the magazine will punch you out or teach you Kung Fu.

Logan Booker
lbooker@atomicmpc.com.au



To see the latest *Atomic* competitions, visit www.atomicmpc.com.au/competitions. The closing date for entries is 13 December 2006. Winners will be announced in *Atomic* 73.

Atomic 69 winners: Lian-Li PC-S80 case. Q: How many 5.25" drives does the Lian-Li PC-S80 have? A: Four. Z. Farrow, Salamander Bay NSW. 5x copies of Joint Task Force + 5x McFarlane Modern Military figurines. Q: What is the name of the developer behind Joint Task Force? A: Most Wanted Entertainment. D. Broce, Westmead NSW; P. Cunningham, Mount Druitt NSW; J. Cooper, Springwood NSW; B. Coe, Yarrun QLD; G. Kemsley, Maroochydore QLD.

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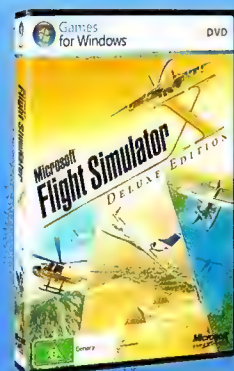
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After that, let's see you rescue an injured climber on Mt. Kihumanjaro. Or take on the world's best pilots in the Red Bull Air Races. With 23 aircraft and over 50 real-world missions, it's the most realistic version yet. While trees and airports have been faithfully recreated, with a 16x overall improvement in terrain graphics. Suddenly, calling it a simulator just doesn't seem right. See more at www.gamesforwindows.com.au



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 "Microsoft Flight Simulator X is superb" - PC Powerplay



Bright eyes, burning like a fire

High Dynamic Range in games, now coming to an LCD near you! Logan Booker reports.

High Dynamic Range support has been available in 3D accelerators since the introduction of Shader Model 2.0, but the full capabilities of the technology did not make themselves apparent until 3.0.

Sadly, many gamers don't know what HDR is exactly – many confusing specular mapping and bloom with HDR. In fact, HDR simply makes both of these effects possible. It does this by allowing light values to exceed their normal limits.

For example, imagine that the brightness range in your typical game goes from 0 (what should be black) to 255 (the whitest white).

Colours normally must adhere to these levels but, with HDR, brightness can be blown out, or reduced, to change the intensity of colours. Again, using our example, we could extend the brightness range to 50 to 305, creating an extreme vibrant explosion, or providing that bloom effect with the blinding brightness it needs. Alternatively, the range could be reduced, to say -50 to 205, to create really dark areas while maintaining detail.

The problem is, while our graphics hardware supports this dynamic brightness, our displays do not.

Enter a company called BrightSide.

BrightSide has developed a technology that replaces the backlight on current LCDs with ultra-bright LEDs, either tri-colour or white. According to the BrightSide website (www.brightsidetech.com) the image is projected onto the LCD as normal, with the LEDs creating a 'low-resolution' but extremely bright copy behind it.

The site explains that this low-resolution aspect is hidden by a combination of software-based algorithms and the normal operation of the eye. As to how bright the screen can get, BrightSide claims 75,000cd/m² (candelas per square metre) – 150 times brighter than your average backlit LCD.

BrightSide already has a product available, the DR37-P, a 37" screen that contains 1380 white LEDs and a 16-bit panel. Unfortunately, the retail price is US\$49,000 (\$65,000), putting it just a little bit out of reach for most people, at least for now.

With organic LED displays coming of age and laser TV apparently on its way (see *Futureproof on the opposite page*) it is technology from companies like BrightSide that keeps LCD chugging away.

Although liquid crystals still have a lot of life left in them (and massive cash investments from companies such as Samsung), display tech is advancing at such a pace that we shouldn't be at all surprised to find the humble LCD superseded in the next five to 10 years, if not sooner.



▲ Middle Earth has never been so bright and vivid!

**SHORT
CIRCUITS**



Windows Vista™

If you were planning to pick up a copy of either of the Home editions of Microsoft's upcoming Windows Vista OS to run in a virtual machine, forget it. According to recently announced licensing terms, you won't legally be allowed to run the operating system on a virtual system.

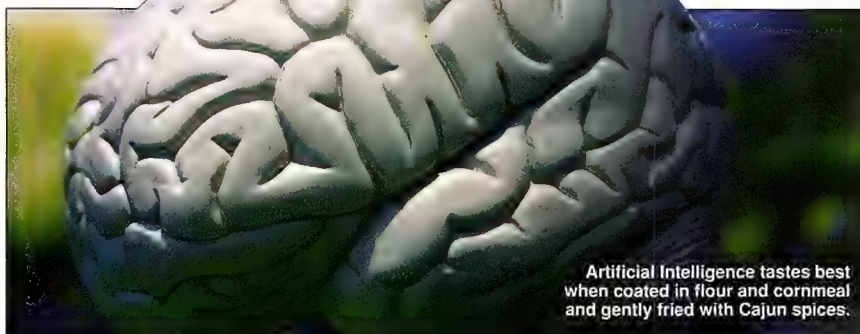
Keeping with Vista, Release Candidate 2 has been released to testers and MSDN

subscribers. If you're keen to get on the Vista action, reports are that this is the most stable version yet. Of course, you'll need to be a tester or, if you're a few scruples short of a preacher, a BitTorrent client.

The Linux world is often a quiet one, but the recent arrest of Hans Reiser over the disappearance of his wife has sent a bit of a shock through open source and the average geek alike. Reiser is famous in Linux circles for the creation of the ReiserFS

journalised filesystem and with his arrest, the future of the technology is uncertain.

The BigPond heartbeat will be retired over the next nine to 12 months from its cable network. The heartbeat was an authentication system that required connected machines to respond to an automated request every five minutes or so via custom software or compatible router. Firewalls often blocked the requests, and users will likely be happy to see it gone.



Artificial Intelligence tastes best when coated in flour and cornmeal and gently fried with Cajun spices.

AI gets hardware

Craig Simms wants his intelligence to be artificial.

As expected, the next hardware accelerated component is AI. A small Israeli company known as AISeek has announced the 'Initia Processor', capable of line of sight sensory simulation, path finding, terrain analysis and even movement. This obviously has some cross over with the potential applications of AGEIA's physics card, and we strongly suspect someone's just going to buy them both out and integrate them into the one product soon enough.

While AI is very game specific, AISeek claims that it'll leave the high level stuff to the CPU, while the 'low level' tasks such as path-finding

and sensory awareness will be accelerated in realtime, up to 200 times faster than our favourite generic processor, thus freeing up CPU resources to handle more complex high level AI. The premise is sound, and opens up the pathway for much smarter AI in general – a fascinating white paper is available at www.aiseek.com, going into more detail of what can be accelerated.

Of course, it's all talk right now, as not much more information is available. Still, it seems the war for the next maths co-processor is upon us, with only one thing for certain – unless Torrenza saves us, we're gonna need more PCI slots.

Box the fox

Craig Simms checks Foxconn's legal super powers.

Foxconn, manufacturer of little bits and retail superstar wannabe, recently convinced a court to freeze the assets of Wang You and Weng Bao, two Chinese journalists who criticised the way the company treated its employees. Foxconn was seeking 30,000,000RMB (\$5m) in damages, proving that being a journalist on this side of the world is significantly safer. It also proves that Foxconn was not prepared to take on Western journalism – within a week of an outcry from the world at large, it reduced the charges to a symbolic 1RMB (almost 17c). Oh, and it's

now suing the employers, Chinese Business News, instead.

In 2004 Foxconn mounted a similar \$5m case in Taiwan, suing journalist Joyce Kuang and freezing her assets over comments that Intel's new 775 platform would benefit Foxconn, as other manufacturers didn't yet have the Intel certification.



POST OF THE MONTH

thatp1g – Get 'em young and train em

We may not have any water, but there's no drought of amazing posts, of late.

Amidst all this wondrous quality, one post stood out as being *really special*. It made us laugh, feel warm and proud inside, and it was a very cool reminder that there's no such thing as a typical Atomican.

thatp1g

Get 'em young and train 'em

www.atomicmpc.com.au/forums.asp?s=1&c=1&t=94435

Typically, it's yet another fine example of thatp1g's storytelling, which is running at 110 percent gold, but really, it's the pics that swung the final vote. Unbeatable.

Congrats to you thatp1g, to lil kiddo for being such a wiz. She can come around and fix our PCs if she wants!



Every Post of the Month wins a fabulous Logitech mouse from the brilliant people from Logitech... Huzzah!!!



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Atomians and vikings
flocked to *Atomic Live*
to hear from the experts.



Atomic Live: Forum Computing in 2010

Monash University in Melbourne became the centre of future hardware, software and cocktails on 28 September. Read on to find out the magic that came of it.

Atomic has a great love of events, big and small. Exhibitions, LAN parties, game previews at cinemas – we've done it all. And we'll keep doing it, as long as you guys enjoy coming to them.

In September, *Atomic* decided to take a trip down to Melbourne and host a new event, called 'Atomic Live: Forum'. No, not an Internet forum – a real, live discussion forum with real, live people.

The topic – computing in 2010. Obviously, as intelligent as we are, we don't have all the super secret answers to something like this. So, we did the only thing we could, and dragged some bigwigs from the top tech companies in the world to answer the question for us. In the following pages you'll read about ASUS, Samsung, Microsoft and AMD's plans for the next four years, as well as a few things they're cooking up now.

Green ASUS

Perhaps the most eye-opening presentation on the night was from ASUS's Emmanuele Silanesu. This rather smart fellow gave a stunning presentation on the future PC, and how close to reality it may be, and how wildly different it is from anything we're used to. The ASUS vision is for modules containing each key component, including CPUs, RAM, optical and hard drives, to be swapped as needed. The example 'computer' shown looked more like a grey bookcase stand than a PC and, according to the Emmanuele, would

use conductivity to charge each module and wireless to communicate. These modules, too, could be easily swapped into a notebook. The drive for this initiative is green computing, and *Atomic* applauds ASUS's stance on the issue. Power users would upgrade modules as needed, and then – here's the beautiful part – return them to ASUS for redistribution to other markets, particularly developing countries. So, not only is ASUS looking to recycle in

the typical sense of mashing old stuff up and turning it into new stuff, but in the sense of reusability as well.

All modules would be leased in the first place so no more hefty initial outlays, and no more waste of money or components. Meanwhile, the developing world gets the computing power it needs and the environment is freed from megatonnes of thrown-away PCs.

ASUS is contributing to the environment in other ways, by building laptops and other devices from 'non-standard' materials. In the examples provided on the night, Emmanuele showed off a notebook covered in leather



▲ Albert Liang (left) from ASUS talks about the future of computing, providing a few practical examples for the *Atomic* crowd and ASUS's Emmanuele Silanesu (right) explains the company's vision for a greener, easier computing future.

The Atomicans of the south crowded into Monash University to hear all about tomorrow's tech landscape.



(yes really, leather!) and another in brushed aluminium. According to Emmanuele, ASUS wants to push the tactile experience along with their environmentally-friendly design choices.

Emmanuele's presentation was also extremely humorous, and had the crowd in stitches. There's something about people with abnormally sized heads speaking in cartoon bubbles – you just can't help but laugh.

ASUS breaks those barriers

Albert Liang, also from ASUS, showcased ASUS's drive to remove all barriers most people have to computing, making for a truly

liveable living room in the not-too-distant future. Albert was kind enough to provide two system specifications side-by-side, showing off the average PC of today compared to that of 2010.

This is an area ASUS is strong in, and you can expect to hear much more soon about how the company is moving to create an integrated digital lifestyle that's easy, powerful and actually useful.

Albert also talked about legacy devices,

especially serial and parallel ports which remain to this day on almost every motherboard you buy, despite there being very, very few products that use either. Albert reinforced that supporting legacy is still a must, with certain boutique serial devices (like baybuses) still seeing use, and people who are unable to let go of their ancient parallel port-based printers. One day they will go the way of the ISA slot – just not today.

ASUS was also nice enough to give away an Intel Core 2 Duo motherboard on the night.





If your answer was E, you should consider studying for your degree at the Australian Defence Force Academy (ADFA). ADFA is a campus of the University of New South Wales located in Canberra. Here you can get a degree in Engineering, Technology, Science, Business or Arts and you'll also learn the leadership skills you'll need as an officer in the Australian Defence Force. There are all kinds of officer positions available from Administration and Logistics through to Aviation, Intelligence and Engineering. You could become a Marine Engineer in the Navy, a Pilot in the Army, or even an Air Defence Officer in the Air Force - there are dozens of exciting

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- D. NO HECS**
- E. ALL OF THE ABOVE**

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atomic LIVEFORUM

Computing + Tech in 2010

Microsoft's digital worlds

First to the podium was Microsoft's Norbert Haehnel. Norbert imagined a future where a fusion of GPS, digital imaging and 3D mapping of the earth – such as Virtual Earth – creates an accurate and up-to-date virtual landscape. Cameras with built-in GPS and wireless would upload images shot outside to a server which would compile them in real-time into a hyper-detailed and always 'live' digital Earth.

This digital Earth would be created and contributed to by the community, and would dynamically represent areas of greatest interest and activity.

Norbert even weathered a couple of questions from the Atomic audience with flair and style, before giving away an Xbox 360 Premium console.

Screens and Samsung

Next up, Simon King from Samsung showed the evolution of LCD technology. We saw the enormous growth in LCD adoption, and



▲ Simon King from Samsung loves a good screen. Lucky for him, Samsung does great screens – now and in the next few years.

Samsung's remarkably huge manufacturing plants being constructed to keep pace. He also outlined the current panel technology Samsung is working with, including how things have advanced over the past few years in relation to brightness, vibrancy and viewing angles.

Simon gave us a nice rundown on future technologies – notably OLED, which Samsung is working hard to perfect. The two remaining obstacles to be overcome are primarily

reducing the cost of manufacturing, so when you do buy an OLED it will be reasonably priced, and the big problem of screen life, which just can't cut it next to LCD and plasma. Simon showed us that Samsung is confident that in the (hopefully) near future, this exciting screen technology could be an excellent alternative to LCD.

As a prize, Samsung gave away a very pretty SyncMaster 931C LCD. ▶

“ Samsung is confident that in the near future OLED screens will be an excellent alternative. ”



▲ Micheal Apthorpe from AMD divulged the company's plans for quad-core and the CPU in the years ahead. Photo courtesy of Supadupa.



'Come on, hand over the future of computing now!' Darren and Ben head the Atomic queue.

Ben does his best Benny Hill impersonation. Chicks dig his Atomic guru status.



“Clock speeds aren't going to get faster... the design of the chips is what will lead to better performance.”

AMD's real quad core

To cap the night off, Michael Apthorpe from AMD broke the news that AMD will certainly be integrating a CPU and GPU on one die in the future. This naturally follows the recent ATI

acquisition. Michael spoke of the uses for the chip, being primarily, and naturally, mobility. The power and cost benefits are a win for users – Michael emphasising that clock speeds aren't necessarily going to get faster at all, but that the design of the chips is what will lead to better performance. With everyone using

atomic LIVEFORUM Computing + Tech in 2010

model numbers now, megahertz, or indeed gigahertz don't matter any more.

Michael also reaffirmed AMD's commitment to the Torrenza platform, a CPU socket capable of taking custom third party chips, allowing 'drop in' power depending on where your PC needs it. You could simply dump in a second CPU if you need the extra processing power, or feasibly a GPU, dedicated physics or AI unit could equally be dropped in. He also made the claim that Intel's current 'quad-core' implementation isn't true quad core, and when AMD brings its product to the market, it won't be a botch job of any sort.

An Athlon 64 3800+ also made its way to one lucky winner on the night.

Closing statements

The night was finished off with a few hard pressed open questions from the floor, which were handled with grace by the representatives, prizes were handed out, and all were happy.

Then everyone headed downstairs to the bar, where the drinks were on Atomic. The experts mixed it up with Atomicans, each grateful for the other's insight.

Several new cocktails were invented, notably the 'Fluffy Logan', and a very good time was had by all.

We would like to thank ASUS, Microsoft, Samsung and AMD for generously providing their time on the night, and fielding questions from ever-information hungry Atomicans.



Stand with a little help from their friends. Atom headed downstairs bar to continue the discuss

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SCANNER

Game, industry and online news for the enthusiast



Beta for Burning Crusade

Logan Booker checks out the closed beta of World of Warcraft: The Burning Crusade.

Mid-October signalled the start of Blizzard's closed beta for World of Warcraft: The Burning Crusade, much to the joy to players who found themselves a part of it, and the chagrin of those excluded.

Somehow *Atomic* managed to load a few characters onto the BC test servers, and have a play of what will undoubtedly be the most purchased game of next year, thanks to the runaway success of the MMO that spawned it.

As of writing, while the option to use pre-made characters was visible in the beta account management screen, it was not enabled for either the PvP or PvE test servers – Blade's Edge and Hellfire respectively. So, we transferred

across a dusty level 60 druid with an assortment of epic gear to Blade's Edge to get an idea of what veteran players can expect when jumping into the expansion for the first time.

“ You can see your critical spell chance for each school of magic. ”

Note that the BC beta allows players with expired accounts to connect and play without having to reactivate, so if you've received a closed beta invite but long given up WoW, you can still give it a try.

One of the first changes we noticed to the game was a more in-depth paperdoll window. The two sub-windows

that contain vital character info, such as stats and armour, can now be configured to show different information using drop down combo boxes situated above each one. The biggest advantage

of this is being able to see your critical spell chance for each school of magic, something oddly missing from vanilla WoW.

This observation led to another discovery: the change to critical hit reporting. Now, instead of straight percentages, weapons have arbitrary critical/hit 'ratings' that, to be honest, aren't very descriptive. After a quick maths session, we figured out that 14 points of crit rating is equal to one percent crit. Why Blizzard has made calculating crit chance that much harder is beyond us.

A 'Looking for Group' button has been added to the main user interface, and provides a way in which to more easily find a group. Whether this will be adopted over the standard 'yell-in-general-chat-until-someone-invites-me' method remains to be seen. The fact that Blizzard has made a valiant attempt to actually implement some sort of coherent and usable LFG system is still commendable and there's no doubt it will be tweaked and improved with patches. Unfortunately we were unable to test it thanks to the deserted nature of the PvP test server.

Otherwise, not much has changed with the interface. Windows and hotbars still can't be moved, requiring a third-party mod such as MoveAnything or BibMod to add this functionality. At least there's wide-screen support, even if it does cause a UI error every time you open the paperdoll window.

We recommend that, if you have a closed beta invite, you try out your class. With the new talents and spells still being tweaked for the January 2007 release, there's a chance you can have something changed before the game hits shelves.



SHORT CIRCUITS

Digital content delivery service Triton, which made a name by being one of the first places gamers could purchase and download 3DRealms' FPS *Prey*, has gone out of business. Players who bought their copy from Triton will find that they can no longer start the game. 3DRealms has stated that it will be sending out boxed copies of the title to all those affected by the closure.

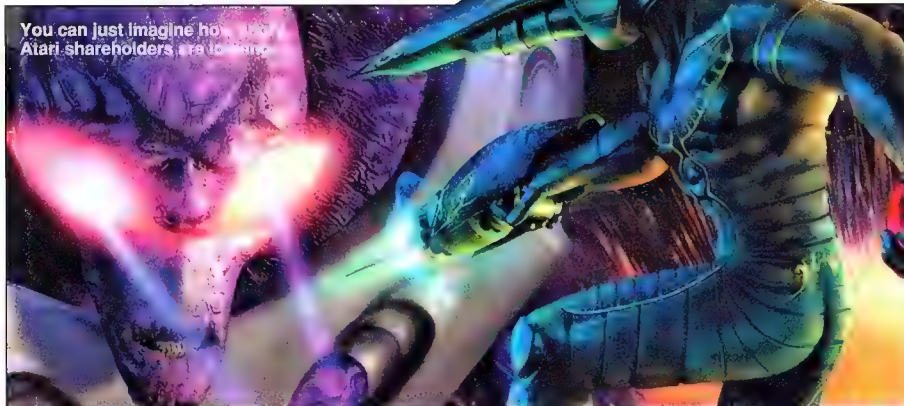


Valve has introduced a 'weapons market' to its successful online multiplayer title, *Counter-Strike: Source*. Each week, purchasing information is gathered and prices for weapons and equipment are updated, based on their popularity. Already the *Night Hawk* has reached \$1300 over its usual \$650, while the *MAC 10* is a bargain \$950. An in-game variable can be set to disable the use of new prices.

Bioware's quasi-Japanese role-playing game Jade Empire will be coming to PC, the release date set for sometime early next year. Originally released on the Xbox, *Jade Empire* blends Bioware's traditional brand of RPG with realtime martial arts combat. The developer has stated that the game will not be a direct port, and will incorporate not only graphical updates, but also new content for the game.

Prey's ugly characters have disappeared from the screens of customers of the fallen Triton.

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Atari sells Shiny

Trying to climb its way back into the black, Atari sheds yet more studios. Logan Booker reports.

It's no secret that Atari isn't doing so well these days. From a healthy US\$4.90 per share in January 2004, the publisher's stock now sits at a decidedly anorexic US\$0.51 per share. While the selling of the Civilization franchise to Take Two back in 2004 and Driver developer Reflections this year may have improved Atari's bank balance it has done little to reinforce investor confidence.

Not that it's scared them off entirely – one simply has to look at EA, which has put on US\$15 in the past three months and sits at a blinding US\$55 as of early October.

Whether Atari is oblivious to its stock price or attempting to shed as much fat as possible before what seems like an inevitable dissolution,

the company has sold veteran developer Shiny to Foundation 9, a US company comprised of various game studios including Black Hole Entertainment and The Collective, for an undisclosed amount.

Shiny is perhaps most known for its MDK series of titles back in the '90s, and more recently, the Matrix games based on the movie trilogy. While both games proved to be hits when released, the Matrix received mixed – though mostly negative – reviews despite selling well at retail.

Although Atari has relinquished the studio to Foundation 9, it has retained the rights to the intellectual property the studio produced in its time with the company.

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atomic magazine, Issue 70
ADSL2+ Modem head to head



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PIPELINE Hot games to watch out for



Mage Knight: Apocalypse

Release date Q4 2006

The world always needs more role-playing action games, and Mage Knight just adds to your choices. Unlike recent non-MMO RPGs, Mage Knight allows for five people to play through the campaign co-operatively, picking one of a selection of fixed characters, each with their own speciality. Group combos can also be performed and, if you don't have the people to make up a five-man, each character can be computer-controlled. As you've probably guessed from the title, it's up to you and your merry band to prevent the end of the world by destroying the forces of evil, something which we all love doing, especially with a friend or four.

Platform PC

Developer InterServ International

Publisher Red Ant

Web mageknight.namco.com



Warhammer: Mark of Chaos

Release date November 2006

With the recent announcement of Dark Crusade, the expansion to THQ's Warhammer RTS, this title may have got lost. Black Hole Entertainment's Warhammer: Mark of Chaos, reportedly plays more like Total War than Warcraft and follows the medieval rather than sci-fi tangent. MoC will boast massive amounts of customisation, including four sides – Empire, Chaos, Skaven and High Elves – and controllable races like Dwarves, Orcs and Goblins. Players can swap body parts, armour and weapons, paint units and craft their own banners. There's a co-op campaign as well as the usual types of multiplayer.

Platform PC

Developer Black Hole Entertainment

Publisher Red Ant

Web www.markofchaos.com

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Tokyo Games Show: Hands-on with the PS3

It's powerful, expensive, and now, very late. David Kidd heads to Tokyo to look at the vision, the games, and the technology surrounding the PlayStation 3.



It's all happening at Sony HQ right now. There are those damn batteries that just can't stop exploding; there's the awesome absurdity of that rootkit fiasco; the lamentable, and somehow telling, closure of the AIBO project; and now amid waves of negativity, the global launch of the PlayStation 3 has been delayed (in Europe and Oceania at least) due to manufacturing issues. To further paint the scene, we have Nintendo's Wii kicking goals, the Xbox 360's awesome online service, and of course, the inherent struggle to get millions of happy PlayStation 2 owners to upgrade.

And so the scene was set for Tokyo Game Show 2006 where Ken Kutaragi, the President and CEO of Sony Computer Entertainment, handed down his vision for the PlayStation 3. Will there be an

online service? How will downloadable content be charged? What innovative interfaces or peripherals are on the way? Why are you charging so much? With so many questions needing answers, Kutaragi's keynote was easily the most anticipated moment of the show.

The vision

Kutaragi's noodle soup of an address was light on details, but we have faith that the father of the PlayStation has some big, big plans. Possibly the most significant feature of the PS3 will be how it fits into the numerous online services that Sony has planned. He emphasised the importance of the Internet and the power of a planet full of PS3s talking to an army of servers. And in an ironic twist on Sony's

history with locked, proprietary technologies, Kutaragi also made special mention of the openness of the Internet, saying, 'Only when a system is open do we have innovation.'

So what will make use of this open network of computers and devices that some folks have dubbed 'The Internet'? First up, small, low-cost downloadable games that will increase in size as broadband connections get faster. Other downloadable content, like new cars for Gran Turismo HD, will also be available, and there were vague mentions of the importance of user-generated content. What this user-generated content is and how it will be used is a mystery.

All this is to be expected. Such a service already exists on the Xbox 360, and is on the cards for



The Tokyo Game Show 2006 even had girls in 3D.



Armored Core
I will explode
and PS3 gets
bored of it.



Lair: well we shouldn't have expected
dragon combat to be an elegant affair.

the Wii. But where Sony can really differ is through downloadable music and movies – yet another feature that was mentioned, but without any details forthcoming.

Ultimately, this is something of a minimal expectation for a next generation console. But where the PS3 will start to pull away from the others is the use of global positioning details to create games or attach to uploaded content. Already Gran Turismo maker Polyphony has been using GPS data to accurately map tracks. If we extend this and imagine a centralised place to store and distribute this information, as well as other types of data, then we can start to build a picture of a huge developer and user-sharing network holding a staggering amount of data.

Finally, the PS3 is going to get a conscience of sorts. It'll ship with a Folding@Home client to make good use of those spare clock cycles, though there's no word

on how this will be controlled, or whether you can switch projects. With a large enough install base and power consumption issues aside, this will likely be the most powerful distributed computer in the world – and it'll only get bigger. Sure, folding proteins and curing cancer might not be what you'd expect in your next game console, but it's this kind of sideways thinking that makes the PS3 an intriguing piece of kit.

1080 lines of love

A cancer-curing machine is pretty cool, but if the games aren't up to scratch, who'd buy it? No one, that's who. So we're delighted to say that it looks stunning. It's hard to discern whether it was the lickable Sony Bravia screens littered around the show floor, but those 200 fully working PS3s were pumping out 1080 lines of the most gorgeous gaming out there.

All the big name sequels are eye-blowing. If you haven't seen the latest trailers, download them,

watch them, then imagine it on the best looking HD screen ever made. Metal Gear Solid 4, Final Fantasy XIII, Call of Duty 3, Sonic... the list goes on. If you're fan of any of these games, you'll buy a PS3. It's that simple.

This will likely be the world's most powerful distributed computer.

Interestingly, Gran Turismo HD didn't set our world on fire (even though it finally has goddamned Ferraris in it). GT nuts probably read that last sentence, but it was flushed from consciousness before it had a chance to get processed. It's

undoubtedly the best looking version of GT, and the cars were impeccably detailed, but overall, it lacked the meaty, polished look of other games next to it.

Hopefully there's still some refinement left to go before release, otherwise we'll be waiting for the true sequel, GT 5.

The non-sequels are also pushing the envelope. Post-apocalyptic racer, MotorStorm, garnered much attention, reminding us of Aussie developer Rat Bag's PowerSlide. It's no gimmicky knock-off either. This baby is a prime example that the Cell means more than just graphics. Each bike, truck or buggy leaves a physical groove on the track, consequently changing the terrain after each lap, and physically affecting vehicles that pass over it. Think you've found a good line on your bike? Better not clip your front wheel on that fresh tire track there or you'll go flying.

Alongside that already impressive number of calculations is the AI trying to make sense of it all. ▶



Metal Gear Solid 4 will make
you wet your pants on PS3.



Each driver knows what kind of vehicle they're in, what others are in, and what those tyre tracks on the ground are going to do (or not do) to their puny trail bike. Overall, this interplay between physics, AI, and stunning graphics, is a small example of what we can expect from the PS3.

PlayStation Wii?

Now we come to the PS3's new motion sensing, rumble-free controller. We couldn't care less that this cheap, dinky device in our hands no longer tries to immerse us by vibrating in our palms, especially if the compromise is something that's

actually an intuitive addition to the controller, and consequently far more immersive than a buzzing piece of plastic.

The most impressive use of the controller was the surreal, downloadable arcade game, *f10w*. You control a swimming worm-thing by moving the controller, eating things, and avoiding being eaten yourself. After getting the hang of swimming, and consciously moving your thumb away from the analog stick, we lost all sense of time and space. For however long we were standing there, holding up the queue of onlookers eager to get a piece of whatever this glassy-eyed crazy 'gaijin'

was on, we had become that worm-thing.

A counterpoint to this was the dragon combat game, *Lair*. Like *f10w*, this makes extensive use of the motion-sensing controller, giving you control over your presumably subjugated dragon as you incinerate vast armies and attack other dragons. It's also a showcase for the controller's capability, which not only lets you fly, but also attack other dragons in close combat by flicking the controller in the direction of the enemy. Compared to the subtlety of *f10w*, or the sophistication of the Wii, it was not an elegant answer to an idea that wasn't very compelling in the first place. Given the hit-and-miss experience, we doubt whether we'll see much motion sensing in the first year of PS3 game launches.

The verdict

The games look and (mostly) play great, the new controller is a mixed bag, and the mysterious online service is a potential winner. But will you slap bills down on a piece of hardware that will likely cost more than the combined price of the Xbox 360 and the Wii? Probably, but not right away. Even with the lower-end 20GB version now coming with HDMI (and hopefully a price drop in Australia), it probably won't fly off the shelves. And even if it did, the existing manufacturing issues won't keep up with that kind of demand. That said, this is without doubt the most impressive and capable game console in the world, and if Kutaragi's vision for its online, interconnected future is realised, the price will be worth it.

WHAT WE'RE WATCHING

Title **MOTORSTORM**

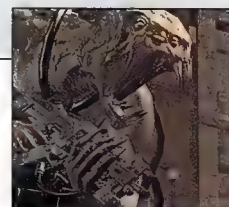
Developer **Evolution Studios**

Website www.evost.net

Why The physics, the AI, the graphics... and it reminds us of one the best Aussie games ever made, *PowerSlide*. It's also developed by Evolution Studios, which is made up of former old-school Brit developers from Digital Image Designs and Psygnosis. These guys have a clue about what makes a good game, and what makes a good sim. The build we saw seemed a fair way from completion, so the Australian PS3 delay could actually be a good thing.



change that. We might even reconsider our elitism about FPS games on consoles. Actually, that's a pretty big maybe – we'll probably just sit back and watch someone else play it, lest we sully our hands with such heretical filth.



Title **HEAVY RAIN AND OMIKRON 2**

Developer **Quantic Dream** Website www.quanticroom.com

Why We're suckers for these Frenchies. These games weren't on show, but *Heavy Rain* is tipped to debut on the PS3, and *Omikron 2* is but a sparkle in the eye of the hunchback that turns the rumour mill. Still, such vagaries haven't stopped us from irrationally perpetuating unfounded rumours in the past, so we won't stop now. Go back and play *Omikron*, then *Fahrenheit*, then watch the *Heavy Rain* trailer, and then imagine what these guys will do with the latest PC and PS3 technology.



Title **EYE OF JUDGEMENT**

Developer **Sony**

Website www.jp.playstation.com/scej/title/eoj

Why It's a combination of cards, board games, and straight-up, turn-based strategy – the three pillars of geekdom. It uses a type of Eye-toy camera to track card placement, and the PS3 plays out the animations on screen. A smooth online matching service will set this hybrid game apart from the standard fare, and we can't help but think about the potential of other board games. A global *Warhammer 40K* tourney, anyone?



Title **RESISTANCE: FALL OF MAN**

Developer **Insomniac** Website www.insomniacgames.com

Why If *Wii Tennis* sits at one end of the spectrum, then this gory, dramatic cinematic monster of a game sits at the other. The Xbox 360 has a claim over console FPS territory, but this alternate history bug hunt could

Title **AFRIKA**

Developer **Rhino Studios** Website www.rhino-studios.co.jp

Why This is a curiosity. We can't imagine what kind of game would involve watching rendered wildlife kill each other, and the trailer didn't shed any light on it. Watching hundreds of detailed gazelles freak out and bound away from a cheetah is intriguing, insofar as the PS3 is able to model such behaviour. It holds the same fascination as the flag ripping in the wind in the *Cell Factor* demo.

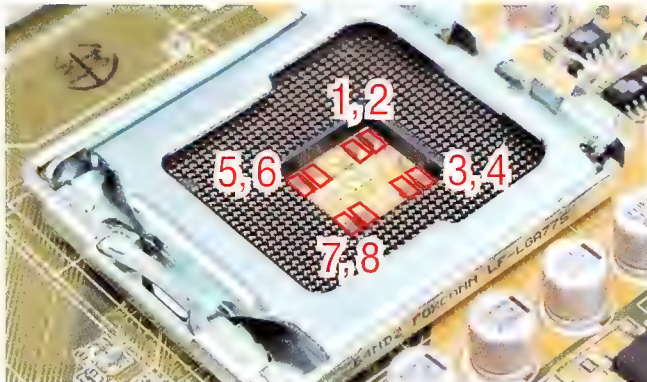


Simple The Stable!!

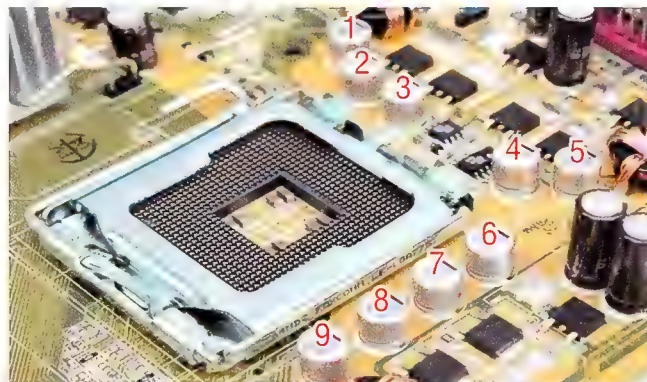
Asus P5B Packs Excellent Innovations that Have Never Been Done On Competing P965 Motherboards

The ASUS P5B packs some excellent innovations that have never been done on competing P965 motherboards. Let us take a look at some of these exclusive features, which caters to the number one concern for PC systems. That's right, it's stability.

Looking at the board layout, it's apparent that ASUS spared no expense and effort in creating this cost-effective yet high-quality solution. The P5B is one of the very few P965 boards that incorporated eight MLCC (multi-layer ceramic chip) caps in the CPU socket, while most still uses only four. The more capacitors to share the load, the better the signal quality, which translates to enhanced CPU performance and operation reliability.

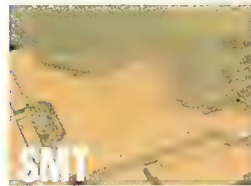


▲ P5B incorporated 8 MLCC caps share the load for better signal quality

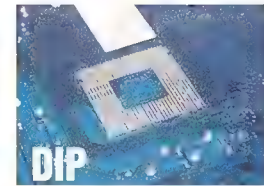


▲ Higher uf value and caps are always food for system stability

While many motherboard makers are using 560uf Vcore caps, the P5B adopted 680uf caps, and the cool thing is that the board has nine of those. Higher uf value means that the cap can handle higher voltage, and of course, more caps to share the work load are always good for system stability.

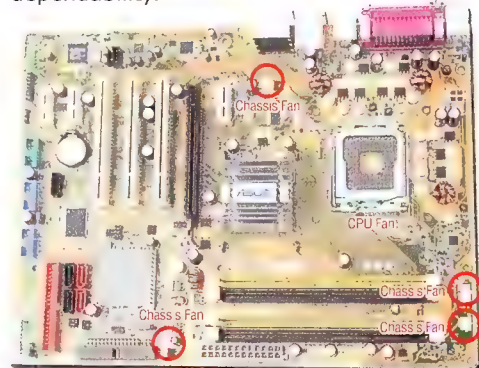


▲ Advanced SMT provide better performance for high-frequency parts



The P5B is produced through the advanced SMT (surface mount technology). Compared to DIP (dual in-line package) technology, SMT enables lower lead resistance and inductance, providing better performance for high-frequency parts. It also leads to more reliable performance under shake and vibration conditions.

Any computer user should know that heat is the top enemy for system stability. With expertise in electrical circuit layout, superior quality parts (caps) and four fan connectors, PCs based on the P5B have been tested and proven to function at 12°C lower than those with competing boards. 12°C can be the difference between night and day when it comes to dependability.



▲ P5B have been tested and proven to function at 12°C lower than those with competing boards

Overall, the P5B is quite an impressive offering from the world's leading motherboard maker. At an affordable price, the P5B still threw in high-quality materials and parts to ensure stability. If you are on the market for a high-performance and high-value P965 board, look no further than the ASUS P5B.

Advertisement

ATOMICCHAT

Talking to the finest human beings on earth

CHAT



Jeff Pobst

Logan Booker talks to one heck of a veteran developer, whose cap feathers include King's Quest, Half-Life and Arcanum

Man or miracle? Jeff Pobst is a combination of both. Only because he's had a hand in every big gaming sensation since the dawn of computing. We couldn't help but talk to him about it all.

atomic Firstly, could you please tell us a little about yourself?

Jeff Pobst I entered the game industry at Sierra On-Line working first as a programmer on King's Quest: Mask of Eternity and later producing externally developed titles for Sierra including those in the Half-Life, Homeworld, Ground Control, Arcanum and Lord of the Rings franchises. Between Sierra and Hidden Path, I led the technical game manager team at Xbox for almost four years which supported hundreds of game developers worldwide making games for Xbox, Xbox Live, and the Xbox 360.

atomic What are your feelings on the recent AMD/ATI merger? What do you think the future holds for the two companies and the industry itself as a result of the merger?

Jeff Pobst When we make games for a console, optimising performance is straightforward in that all the players have the exact same hardware and we can maximise performance for that hardware spec. On Windows, we have to come up with a minimum requirement estimate and balance how much technology our game

experience requires with how many people will be able to play it.

As we watch what comes of the merger, I think the possibilities of getting exceptional computers with great CPUs and great graphics cards in the hands of more and more consumers helps us make games for higher end computers than ever before. Too many people right now are able to buy computers that aren't balanced for gaming. Having these two companies get together can open the door for more baseline PCs being out there that are better balanced for great game experiences.

atomic Do you have a close relationship with Microsoft, thanks to your previous time there? What opportunities has it opened up for Hidden Path?

Jeff Pobst After helping launch the Xbox 360, we left Microsoft on great terms and have many friends and colleagues there. Since we've been in the game industry a while, we also have relationships with friends and colleagues at many other publishers too. Our goal is

to make great products that are unique and exciting and that can include several different gaming platforms. Each publisher is typically looking for something different to aid in where they're going with their portfolios. We have several different projects in the works, and some are better fits for one publisher than another.

We have been involved with the Microsoft XNA team and built for them a technology demo shown at Game Developers Conference 2006 called 'Culture'. We then built a more full fledged game version of 'Culture' that was shown recently at Microsoft Gamefest 2006 with multiple game modes. We're excited to be involved with the XNA team and the cool stuff they're doing. Every line of code in 'Culture' is written in C# and that code can run on both Windows and Xbox 360 (as we showed at GDC) thanks to the XNA Framework we've built on.

atomic What is your opinion of the MMO market? Off the back of the success of World of Warcraft, many publishers are embracing it as the constant revenue stream they've been searching for. Is it heading for a collapse or will it continue to grow?

Jeff Pobst Business on the AAA retail side is very much a 'hit driven' business. Only 15 percent of games at retail actually make enough money to pay for themselves but those that are in that top group, make a tremendous amount of money. On the MMO side, I don't think we really know yet how people will respond to having many different quality MMO choices and how that will affect the MMO business. If you look at 'Sir Bruce' Sterling Woodcock's numbers on MMOs, he lists only 12 games that have had more than 120,000 subscribers in the last nine years! I think this is why many people reset their projections and expectations almost every time a new MMO comes out. Obviously, WoW has shown that subscriber numbers can be several millions rather than hundreds of thousands and many people didn't think that was possible for any MMO before it launched. WoW's success has brought in even more entrants into the MMO space and there will be a lot of competition there.

atomic How about online distribution systems like Steam? Will there be a place for traditional distribution in the future?

Jeff Pobst It's pretty clear that retail is still extremely important for most of the game



Half-Life's success gave it the fan-base for the release of additional content.

Pobst helped launch Xbox 360, then left Microsoft on good terms.

industry. In 2000, 97 percent of game sales took place at retail, and now in 2006, that number is 92 percent. Not such a huge drop that the retailers should be packing up any time soon, but of course those developers who want direct relationships with the gamer see this as a positive trend.

We have all heard about the success Valve is having via Steam and how it is both the content creator and the distributor. I think in its case, Valve has been able to take an extremely strong brand and break from the mould. It doesn't need to be important to it whether or not most games are sold online or at retail. What matters is simply how the game is sold, and perhaps it can open the door for a group of others who target a similar demographic.

atomic What is your opinion of 'episodic' gaming? Epic Games's Mark Rein was quick to knock it down. Do you think it's a workable business model when you don't have the huge success of something like Half-Life behind it?

Jeff Pobst Mark pointed out that there is a big difference between going around and using the buzzwords 'episodic content' for a new game and developing an actual business model for it.

When I was at Sierra, I was fortunate to work with Valve and Gearbox on Half-Life: Opposing Force, and Half-Life: Counter-Strike – expansions to the original Half-Life product. We saw a huge fan base for additional content that came from pre-existing Half-Life fans who loved the initial release and wanted more. Mark may be right that without that leading title, the marketing side of the equation doesn't add up and it becomes difficult to promote and build a large enough fan base for episodic content without that flagship title.

One thing that is new to the model and opens up this question is the micropayment systems coming with each of the next-gen console systems allowing gamers to pay very small amounts for small pieces of content. Whether or not that content will be in the form of successful episodes or not remains to be seen, but the one thing I am sure about is that game developers have new ways to sell content to gamers and that is very exciting.

atomic Lastly, you worked on a number of games, including Half-Life and Arcanum. Both (the now-defunct) Troika and Valve are similar in that they release games somewhat irregularly. How come Valve managed to weather the storm but Troika ended belly-up? Is there still

a place for the independent developer or is big publisher support a must these days?

Jeff Pobst I had the opportunity to work with great folks at both Valve and Troika. Valve on the Half-Life additions, expansions, and content that followed the original game release, and Troika on Arcanum. Valve's success comes obviously from making not just a great product, but a topmost tier product in both quality and sales. The kind of revenue it has received gives it the financial freedom and flexibility to be very liberal with their schedule, and as you put it, irregular in their releases. The team obviously knows how to use the extra time and make exceptional products as we've seen with Half-Life 2.

In many cases, I've seen a number of

developers who have made great games that are critically successful, but for one reason or another have not had the kind of sales success that maintains cash flow and keeps the doors open. Whether that was the case with Troika, I don't know, I wasn't working with it when it closed its doors.

More broadly, I think a common source of disconnect is that

our industry still doesn't know the audience well enough. Developers know the first 50,000 consumers who buy their games pretty well. They're on our message boards and speak back to us pretty clearly. They even may know the first 200,000 consumers fairly well, as that group are early adopters and are more like people in the game industry in knowledge of the game space and what differentiates game products from each other. I think our industry, though, has a very hard time connecting well with the consumers who make up sales



200,000 through 500,000, and have even a harder time understanding consumers 500,000 through multiple millions. I think this is why the game industry still doesn't understand well what products need to do to 'break through' to the masses and become hits, and why being an indie developer, or even a large publisher, can be a risky proposition in our industry.

I still do think there is a significant place for the indie developer (I've bet my current career on that fact). The thing that excites me about being part of the team at Hidden Path Entertainment is that we really do understand the mass market, have worked on games that broke through to millions of consumers, and have a decent idea of why that was the case and not just a gut feel. I'm very excited about the future of Hidden Path, and while many folks will be hearing about us for the first time in this article, I know they will be hearing much more about us in the future.

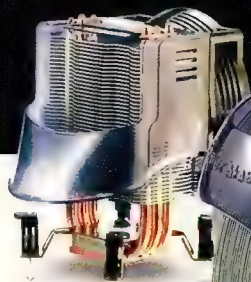
“The game industry still doesn't understand what products need to do to break through.”





New Cooling Era

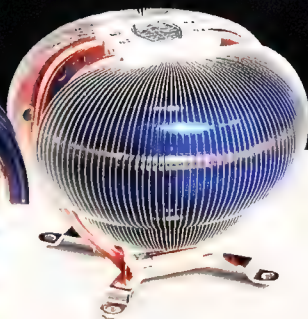
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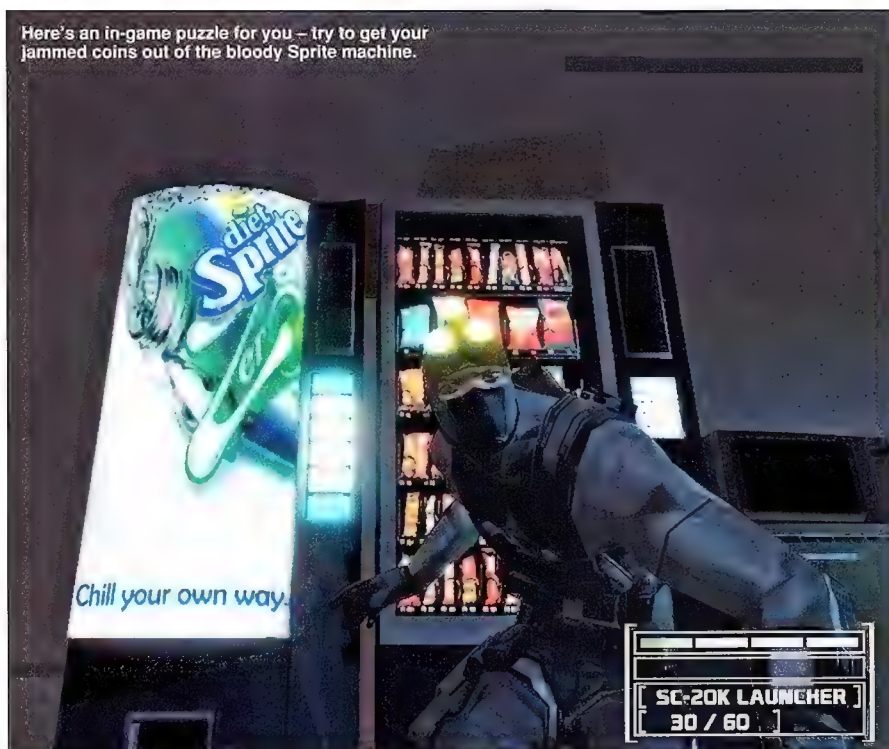


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ATOMICX-RAY

Looking at
tech from
the inside

Here's an in-game puzzle for you – try to get your jammed coins out of the bloody Sprite machine.



In-game advertising

Splinter Cell's Sam Fisher is a buff, manly arse-kicker. He also likes Airwaves chewing gum. That's no coincidence, reports Christopher Taylor.

When it was recently reported that Battlefield 2142 was going to have ads, gamers everywhere were outraged.

Okay, so it wasn't unusual to hear a lot of angry forum whores mention EA in the same sentence as other signs of the End of Times (all that business with earthquakes and global warming, Rob Schneider's mere existence...), but it's fair to say that a lot more people than usual had become very hostile.

At Atomic, we like to think we're fairly rational and maybe even vaguely sensible – at least when we're not off our tits on caffeine, sugar or alcohol, armed with a power tool and placed in the same room as a perfectly good PC case – so we set out to see how bad the situation really was.

My generation

The reasons behind the whole move to put ads into games – which isn't a strictly recent move, we might add – are obvious. Gaming is a big business. Huge, as Uma Thurman would say.

According to Massive Incorporated, (www.massiveincorporated.com), a company dedicated to providing a 'channel to the gaming audience', 70 percent of men aged between 18 and 34 play games. And that is a metric

arseload of people who by definition have one hell of a disposable income. If you're in that demographic – and, if you're reading this, there's a good chance you are – you're a valuable target for big business.

It doesn't matter if you're a little uneasy about the idea of EA getting a bunch of facts and figures about you every time you fire up Battlefield, it's just the reality of it all. Gaming is no longer some obscure nerdy pastime and mainstream industries

are finally starting to realise this. It's only natural that they're going to attempt to exploit it.

Context is everything

And this is where companies like the aforementioned Massive Incorporated, Double Fusion (www.doublefusion.com) and IGA (www.igaworldwide.com) come in. Their role is to work with both publishers and advertisers, creating ads and then putting them into the right places in the right games.

Double Fusion was so kind as to give us an example. 'In Stuntman 2 – a title we're selling right now – you're a stuntman and the game levels are [movie sets]. On these sets, there are signs and storefronts – these can be ads. You can have a branded vehicle and a branded movie set. Perhaps a character could receive a call on a branded cell phone or drink from a branded can of soda.' Ads can be interactive, too. 'Think of a phone you can pick up and interact with and that offers some kind of benefit in the game versus a phone on a billboard. [This sort of thing] does

“ These ad servers can target by region, time and even age. ”

more and is worth more than other formats.'

The way it's explained, in-game ads fall into two categories – static or dynamic.

The idea of 'static ads' is pretty self-explanatory and not especially inspiring. It's just an ad – a poster, a film clip on a television screen that starts playing when you're in the area, a branded pizza box – that is inserted into the game during the development





Old Spice reminds you to drop into the supermarket as you burn it up in Need for Speed 2.



Sam Fisher's an arse-kicker with bad breathe. Thank God for Airwaves.

“Don't expect to see billboards promoting porn sites in Need for Speed any time soon.”

process. Sure, there's probably some market research involved, but that's pretty much it.

Dynamic ads, however, are interesting. As Massive puts it, '[Our SDK] integrates into game engines at the development stage and handles all connections and communications with [our] ad server, allowing the game to dynamically download advertising into the game. Using texture replacement, the game engine blends the advertising into [the] game environment as part of the normal rendering and display process. With minimal memory impact and no noticeable effect on bandwidth, the dynamic ad serving process is transparent to gamers.'

They're not just throwing around obnoxious

corporate buzzwords when they say 'dynamic' either. These ad servers target by geographic region, time and even age in games that require registration.

One of the major benefits of these dynamic ads is that the companies involved are able to get live feedback on how gamers are reacting to them. Double Fusion tells us that '[our] ad server tracks ad impressions. An ad is only considered served when a gamer sees it for a certain amount of time and at a certain size. This provides accountability and measurement, and also allows for ad placements to be optimised.'

Obviously your machine, whether it's a console or a computer, needs to be hooked up to the Internet for this to work, but with the proliferation

of broadband it's fair to say that most gamers are going to be online when they're playing.

What's interesting is that publishers retain complete control over what goes into their games – it's not just an open slather, so don't expect to see billboards promoting porn sites in Need for Speed any time soon. Furthermore, publishers can use these services to track the behaviour of gamers. Not in some creepy, stalker-like way, but in the interests of seeing how people play their games. As Double Fusion puts it, '[They can see] how many people take a left turn [as opposed to] how many take a right.'

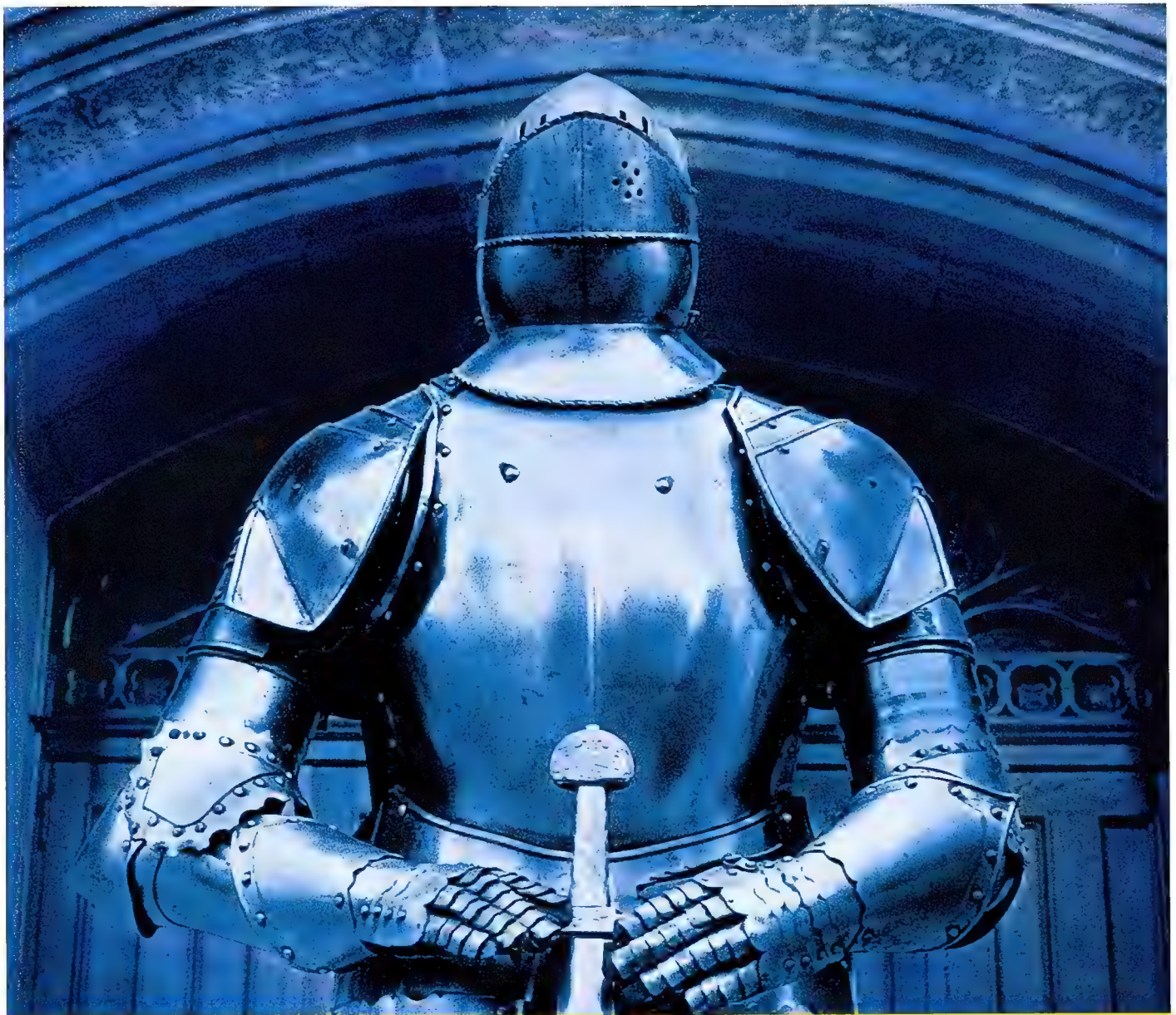
One of our biggest concerns about this whole process is security, but Massive is quick to respond to this. '[Our] system is fully secure and hosted in professional facilities behind industrial-strength firewalls strictly monitored both physically and electronically. Public and private encryption keys and the use of secure communication protocols ensure that only legitimate communication from Massive servers is allowed for ad downloads.'

Don't be evil

No one can honestly say that this was unexpected. Whether it's going to end up being good or bad is another matter, but for now we beg you not to get too carried away or overexcited. If the ads in Battlefield 2142 or any other game bother you that much then by all means, refuse to buy it, but at the end of the day this is the path the industry is going down. We can only hope it eventually translates to cheaper prices.



'Don't look at me, I'm an inanimate object.' Just a billboard in fact.



If your Windows® protection is dated, your business could be history.

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Z-ACCESS

The big picture behind technology and the world around us

All these big numbers are making my artificial head hurt.

Hard smarts

Can the revelation of dedicated 3D chips be applied to physics and AI? With the coming multi-core CPU era, Tim Dean is not so sure.

The world is a notoriously unfriendly place for the humble mathematician. The very act of mathematically representing such seemingly trivial everyday phenomena as sunlight casting a shadow, the wind blowing through leaves or deciding between chocolate and strawberry can cause even the most stoic of our numerically gifted friends to collapse into an incoherent bundle of tweed.

Looming just beyond the apparent simplicity and 'beauty' of a nice mathematical theory to describe physical phenomena is a monumental amount of unglamorous number crunching. This is where our bespectacled companions in the maths world – as well as us gamers – tend to turn to computers for help.

However, it's not simply a task of passing a list of complex computations over to a common or garden variety CPU and expecting it to render a photorealistic vista in realtime. General purpose CPUs have a tremendous knack of being able to handle just about any computation you can throw at them, but this versatility comes at the cost of performance. And when it comes to the kinds of maths that are required to simulate reality, you don't really need a wide repertoire of computational abilities – you just need to be able to do a few particular calculations over, and over, and over again at breakneck speeds.

As gamers, we've known this for many years now. Ever since the release of the iconic 3Dfx Voodoo Graphics, the mathematics behind sunlight and shadows didn't look all that intimidating any more.

The revelation of the Voodoo sparked off an entire multi-billion dollar industry of 3D graphics. However, that lesson didn't go unnoticed in other fields. Some big brains have recently turned their attention to other aspects of reality: physics and artificial intelligence. As a result, we now have the PhysX chip from AGEIA and a new company called Alseek developing a dedicated AI chip, the Intia.

The question is, do physics and AI lend themselves to outsourced processors in the same ways as graphics? I'm not so sure they do.

There's no question that the mathematics involved are very specialised and repetitive – not the kind of stuff that general purpose CPUs excel at.

However, there's a big difference between the world of graphics and the worlds of physics and AI: while graphics sits at the end of the processing chain, physics and AI sit somewhere in the middle.

This means the CPU will have to occasionally wait for the results of some physics or AI computation to come back over a relatively slow system bus before it can continue processing.

A third party physics or AI card also makes things complicated for developers, who have to factor in another level of programming, and will inevitably have to include a 'software' mode as well – at least until physics and AI cards become as ubiquitous as 3D cards. Then there's the question of APIs and how to integrate a generic set of instructions into something as core as physics and AI in gameplay.

While I'd love nothing more than to be proven wrong and see a proliferation of cheap high speed physics and AI chips hit the market, I have a nagging feeling that it's just not going to happen. We hear the analogy drawn between physics and AI and the world of 3D graphics all the time, but the analogy just isn't accurate. And with the coming of even bigger multi-core processors, frankly, the CPU just won't be a bottleneck any more.

Simulating the world might well be mathematically challenging, but it may not prove challenging enough to require dedicated physics and AI processors after all.

Tim's counting skills continue to improve.
tim@atomicmpc.com.au



“Do physics and AI lend themselves to outsourced processors in the same way as graphics?”



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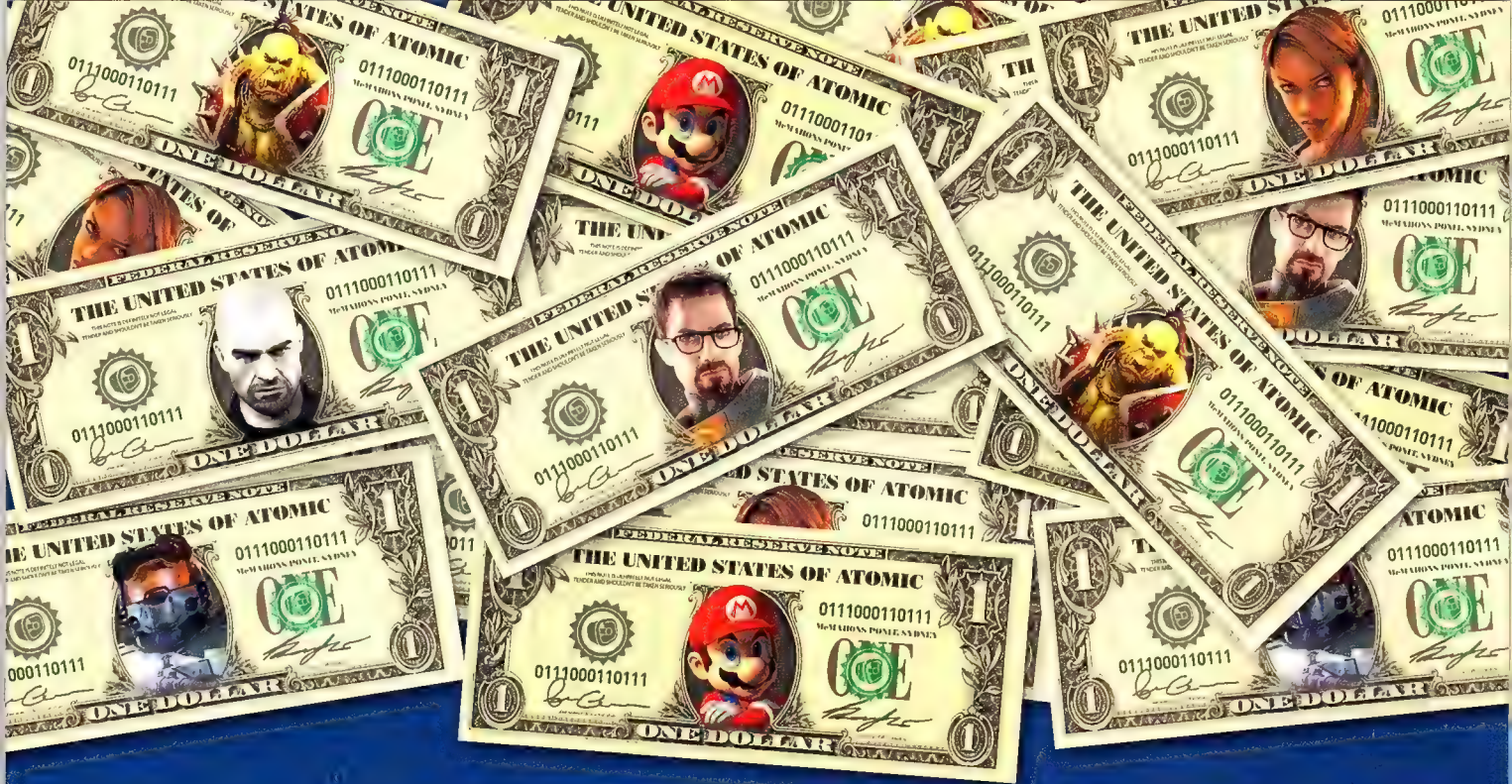
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GET RICH GAMING

If only you had a dollar for every dragon you'd slayed or dungeon you'd plundered...
Seamus Byrne goes searching for ways to make cash from gaming pleasure.



For gamers, if heaven is in the back of a panel van, that can only mean system-linked consoles with wall-mounted LCDs. When you need gaming like you need caffeine, the idea of getting paid to play is the eternal dream.

Shouldn't we all dream the impossible dream? How impossible is it to earn your fortune through games? Or even just to make a living? If you want it bad enough, there's more than one way to skin a wireframe, so we're taking you on a journey through five of the main routes to making coin from your lust for games.

THE GAMES DEVELOPER

Salary (estimate): \$1,000,000

The Job: Maybe the best way to play the games you dream of is to make them yourself. And if you make the game of everyone else's dreams you'll be looking good to come away with that gaming fortune.

You can try to go it alone, but that's the path of mods and mini-games, which is a tough road to take. You'll have to do and manage everything, which really isn't going to pay the bills anytime soon. The best start is to find your way into an established development studio. Maybe down the road you can bust out, get some venture capital and do your own thing, but the best place to learn the business of making games, and make a living through games while you do it, is to do it inside the system.

Here in Australia we have some serious players to aim for. Pandemic in Brisbane; Melbourne House in, yes, Melbourne; IR Gurus, also in Melbourne; Krome in Fortitude Valley; Irrational in Canberra; that's just five of more than 40 companies employing about 1000 people.

Of course, 'game developer' isn't really the job. There are four basic roles within development you can go for – programmer, artist, designer, and tester (a.k.a. quality assurance, or QA).

A wander through a handful of Australian developers' websites shows a good number of positions available, particularly for coders and designers.

You will need to bring your A-game to make the cut in a game studio. If this is your dream then you should be working on your talents in your own time, ready to ship off the resume when the right position becomes available.

Jonathan Chey at Irrational Games – developer of the moment thanks to its nova hot title *Bioshock* – has the hot tip for coders. 'If you don't know what C++ is, don't bother applying. We do use some other languages for specialised tasks – Flash, Perl, Ruby, et cetera – but C++ is our bread and butter.'

On the artistic front, Chey sees an influence on these roles from cheap design outsourcing, which is pushing the skills an artist will need toward 'pure' artistic ability. Better break out the pen set more so than learning your way around Illustrator.

The game designer is a dream job within a dream industry. As Chey puts it, they're 'someone who can just sit around and come up with game ideas and mechanics.' Their job is similar to that of a mod author, building levels much of the time using custom level editing tools, while also focusing on game balance, reviewing tests, and generating content ideas. A nice job that doesn't have the same specialist skill demands of the code and art roles, but the seniority is such that you're going to have to pull something spectacular out of your butt to nab this

gig. You're more likely to earn this position from another team position first, or do some sexy mod or level work that makes people take notice.

Then there is the true 'playing games' position – QA. Chey admits this fits the dream of playing games all day. But this position is very demanding.

'The catch is you have to play the same game and its full of bugs. Being a great tester is a very difficult thing to be. You have to be detail oriented, bloody-minded and persistent. Being able to critique game design and balance is a help, too.'

Studio positions don't end there either. There are also writers, general producers, and of course an audio creative team. The key is to be good at what you do and watch the studios closely for notice of when they're looking for new staff.

The money isn't going to see you bankrolling many round the world solo balloon voyages, but if you get in you will definitely be making a living in games.

The Reality: Watch the job ads and developer websites closely for positions available and, while you're waiting, get your skills and professional attitude in order. There are real careers with real job progression to be had if you really want to be in the business.



INSIDER VIEW Jonathan Chey, Irrational Games

Chey, a co-founder of Irrational and head of the local office, has some hints on how to get to where you want to be.

Where is the 'foot in the door' role?

Each discipline has a junior or entry level job. You don't have to get in through testing, although that's probably the only area that might let you in without having any specialised skills. Junior programmers need some tertiary qualification or an independent demonstration of great coding skills – we've employed an 18-year-old straight out of high school just because he wrote his own games in his own time. Artists need a portfolio showing what they can do in 3D Studio or Maya or just with pencil and paper. And designers probably need to have worked in mod development and be able to show some levels or something similar.

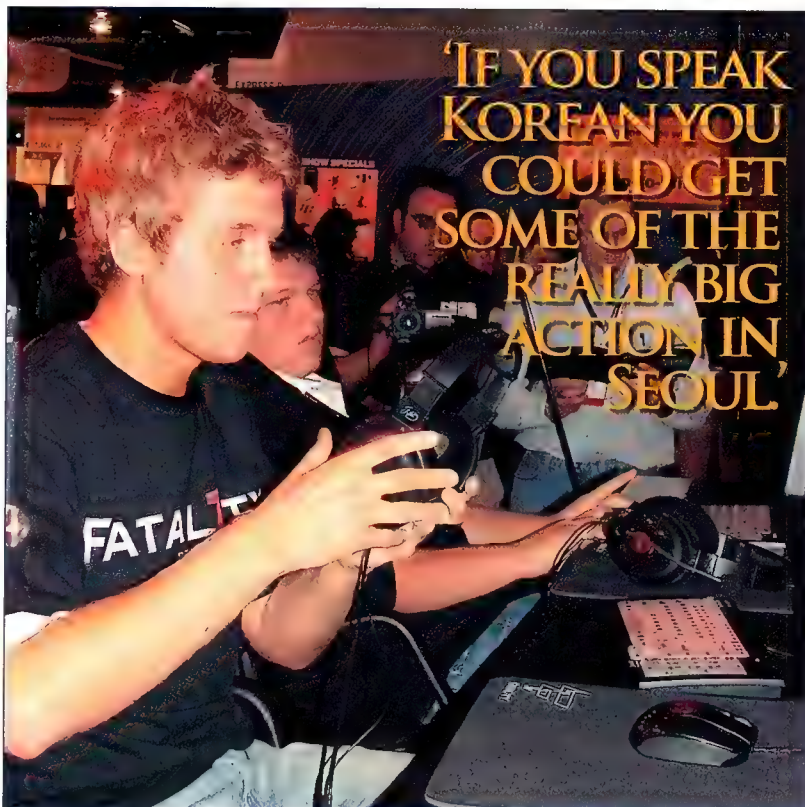
What 'soft skills' will help someone in this business?

Personal hygiene. Communication skills. A sense of humour. Necessary for any job, I guess.

Any other pearls of wisdom?

Never fight a war on two fronts. Also, make sure you stock up on health potions before you go into the dungeon.





THE PRO GAMER

Salary (estimate): \$500,000 plus endorsements

The Job: Of all the concepts of 'making money playing games', being a professional gamer has to take the cake. Plus it's about so much more than making money. This is *Top Gun* stuff. This also means playing games shifts from a casual pursuit to one of focus and determination – but isn't that how any hardcore gamer plays anyway?

In the last few years 'eSport' has begun to offer hope to gamers in the way other kids might dream of basketball or football. The top leagues are now operating on million dollar prize pools and top players are earning very good six figure winnings. US teams are now offering serious contracts to players and excellent endorsement deals. Jonathan 'Fatal1ty' Wendel has his own range of products, as well as last year taking home one of the largest single cash prizes yet: a cool US\$150,000.

Then there is the recent success of Tom Taylor, an 18-year-old who dropped out of high school to go pro. Six months later he signed a US\$250,000 contract and he's playing in the Major League Gaming pro tour.

But eSports are like the Olympics. If you want to be the greatest you'll have to get very good at one thing. You'll undoubtedly play in a very different way to when it is just about fun, but unlike any of the other paths explored here you are still playing games in a genuine way.

If you want to make a play in the big time overseas, you'll probably get your best shot in North America (unless you speak Korean, which could help get into some of the really big action down Seoul way). In the US there is Major League Gaming (console focused), Cyberathlete Professional League (LAN focused), and then there are the World Cyber Games and the Electronic Sports World Cup where people fight for national honour as well as a big pay cheque.

Your biggest investment is going to be in getting a serious gaming rig for PC action. It will be a lot cheaper if consoles are your platform of choice.

Locally, the big dollars are yet to arrive, but there are serious teams playing at an elite level, vying for the right to represent Australia at international tournaments. These teams do have sponsorships, which help players get to events overseas and into the top flight action.

The Reality: Put in a lot of hours honing your skills, test yourself online and if you think you can cut it, get into the tournaments and fight your way to the cash.

INSIDER VIEW

Tony Trubridge, MD and founder, Team Immunity

With serious management and sponsorships from Intel, Everglide and GeIL, Immunity is one of the best backed local teams. They can pay for team members to compete at home and abroad as well as offering members performance-based payments.

What does it take to crack the pro scene?

To join the elite in eSports internationally it takes a lot of hard work and dedication. Top teams spend six hours a day, five days a week practising strategies and techniques. The key to cracking the 'major leagues' is to enjoy what you are doing. It's something players fall into and if they are given the opportunity and have the inclination, they will take it as far as they can.

What is necessary gear for a pro gamer?

It really comes down to the game you are wanting to play. An RTS, for example, is not going to stress the system anywhere near as much as an FPS. There is no question the best processors for gaming today are Intel's Core 2 Duo range. Paired with an after market video card you will be a force to be reckoned with. Headphones give you a far higher quality experience than even the best speakers. You are able to pinpoint the exact location, distance and threat level of an enemy.

What are the fundamentals a gamer needs?

Skills required to become a top FPS gamer are similar in many ways to the world's top traditional athletes. Those who have naturally keen reflexes, dexterity and good hand eye coordination are at an advantage. As with almost every sport, if you practise hard enough you will obtain results. Practice makes perfect.

For elite gamers, do games stop being fun?

While competing at the highest levels in eSports is exciting at times, the work required to get there and maintain the level is a lot of hard work. Many players and teams have become victims of excessive and uncontrolled play, becoming burned out and disinterested. Dedicated management helps to ensure these problems do not occur.



THE TRADER/BUILDER

Salary (estimate): \$200,000

The Job: With virtual worlds growing in popularity, so too does the market for virtual goods, and in places like Second Life and Entropia Universe there are some amazing opportunities for those with a bit of an entrepreneurial spirit.

Let's be clear: people who take these worlds seriously don't call them 'games'. They are 'platforms', where you can do and create all kinds of things. For example, you can play games inside Second Life. Even better, you can make a game inside Second Life and sell it to other users.

Which is exactly what Nathan Keir did.

The Kiwi native developed a simple little idea, which mixes Bingo and Tetris – Tringo! Second Lifers fell in love, and from there he's sold hundreds of copies at a price that has delivered him a tidy second income. Recent developments have seen the idea licensed and it is soon to break out of Second Life and back into the First, hitting portable game platforms in the not too distant future.

It is the conversion of real world dollars to virtual currency, and vice versa, that is the key here. You can manufacture your own goods in these worlds and if

INSIDER VIEW Nathan Keir, aka Kermitt Quirk, successful Second Lifer

Keir is here to help you find your own path to a virtual gold mine!

How did the Tringo success come about?

My aim was not to sell it, initially. I was just doing it for fun. It's hard to say how far it will go, you know, but at the moment my income is not 100 percent stable because I'm just going by sales, so I wouldn't want to try and live on that. For the initial design and development, I guess it was only about two or three weeks worth, but since then, with the support and everything, and working on a new version, I spend most weekends and at least a good three to four hours a night. It really is a part of everyday life now.

What are the tools like for building game items?

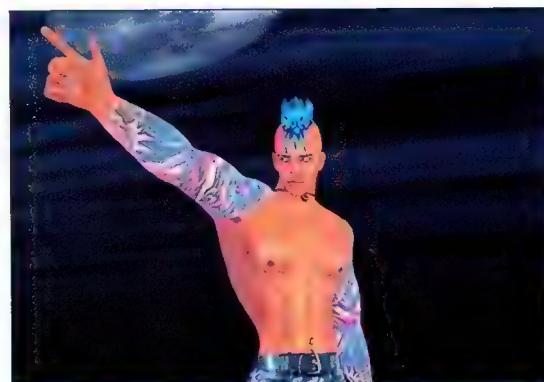
The modelling is basic. Not very complex compared to full blown 3D tools. The more complex stuff gets into the scripting language itself. It's hard to compare, as a lot of the functions are very different to anything else because they are specific to the Second Life world, but in syntax it is quite like C or Java.

What will it cost before you can start selling things in Second Life?

You can jump in for no cost and start building stuff. Then you just need to organise where you're going to sell it from. You can hire vendors and things like that, people who just hire out little areas in shops and malls if you don't want to buy your own land and do the setup.

What's the secret to making money in Second Life?

Most people who make a lot of money in Second Life didn't go in there to make the money. You need to remember that it's a big place now, so you have to really have something original. Having it be something you really want to do seems to help get to an end result. Your heart has got to be in it.



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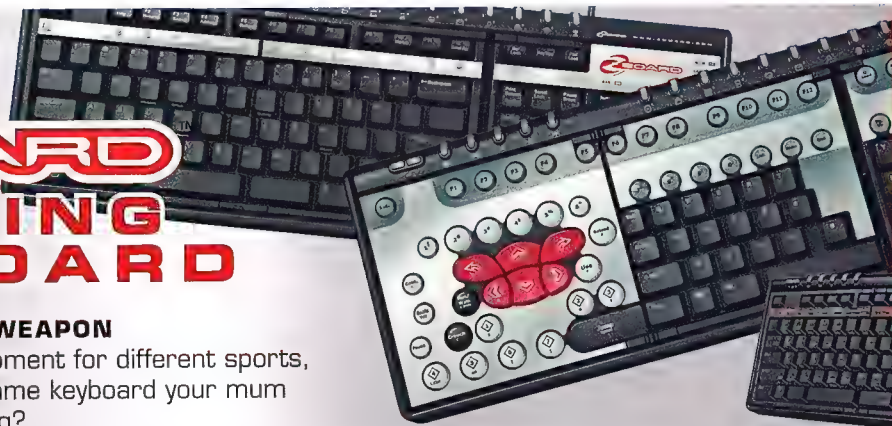
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Harvey Norman

You can even get game specific swappable keysets for all of today's top titles.



'EVEN WHOLE ISLANDS ARE BEING BOUGHT AND SOLD.'

they're interesting enough they can be sold for real profit. In-game items like T-shirts, shoes, games, houses, even whole islands are being bought and sold.

These latter items are seeing the biggest dollars being made, with virtual property developers like Anshe Chung cracking six-figure annual incomes for their efforts. They don't just sell, they lease – so the dollars keep rolling in.

Big companies are now deciding it is worth having a virtual HQ, which is bringing more opportunities for virtual trade and land development.

It isn't very expensive to start, either. You can get a free account and build your skills in sandbox locations in the world

– there are even training events to help you learn – before creating and selling your own goods or investing in land to develop. If you want to get serious, you will need to pay other users for access to virtual marketplaces. You need to be seen in the right malls if you are going to sell your goods.

The Reality: Get involved in a world like Second Life, assess the market, and if you can find your angle, now is the time to get in there and craft/build/develop your way to some big dollars.

THE GOLD FARMER

Salary (estimate): \$100,000

The Job: The second kind of virtual trade, focused less on the creative and more on the idea of grinding out a living through volume selling gold and items.

Like pro gaming, you are putting your effort into playing a game to make your living. But in this case you are going to have to do some very repetitive play. The temptation will then be to use bots and run multiple computers, which is sure to lead down a path of lying about what you do for a crust – your gamer friends, in particular, will hate you for what you do.

The big trouble with this gig is the influence of cheap labour markets on the currency trade. This causes low-ball real world prices that will leave most players struggling to earn their keep. A visit to sites like **IGE.com** show Australian WoW servers selling 100 gold for less than US\$20. For a somewhat adequate weekly wage, you'll need to compete with IGE's pricing on 4,000+ gold, which will require some mind-numbing play and little sleep. And

INSIDER VIEW Ben Mansill, God of Gaming, Atomic

From the lows of support work to the heights of *Atomic* games guru, Mansill has all the goods on what it takes to be a games journalist.

What does a games writer need to do?

Communicate the experience. I hate the template – history, storyline, gameplay, graphics, and 'if you're into this sort of thing, check it out.' That's useless. Instead it's important to let the reader know how the game is going to challenge them, reward them, what sort of fun, exactly, is there to be had.

What is the tough part of writing about games?

All game playing is done in our own personal time, so after being at work all day, it often feels like you've just worked a 20-hour day when you finally walk away from the PC and crash.

Where should someone start?

Send the Editor of the mag or site a short email offering your services, attach a 500-word (or less) sample review/news story/preview, or links to already published work, and wait. Suggesting feature ideas will also be warmly received. In essence, make it as easy as possible for the Editor to decide to give you work. No email should be longer than three paragraphs. Do not ring up to 'just to say g'day and see what's up'. Always be focused and efficient.

Final hot tips?

1. Know games, and games history.
2. Be a wonderful communicator, smart, clever, witty.
3. Be a perfectionist – play the game through, taking notes as you go.
4. Be an artist. A screenshot can be beautiful or boring.
5. Be a bloody hard worker. Become the Editor's dream writer.
6. Be nice. You will mix with all kinds from the industry. Be someone everyone likes.
7. Be professional. The Australian games journo scene is mostly populated by lazy, sloppy and disrespectful freeloaders. Be professional and all the games publishers will love you.



unlike IGE, you'll need to work hard to find buyers. And we won't even get into account closure possibilities.

Looking at IGE again, it will actually buy items and gold from gamers to resell. We struggled to spot a WoW server it was currently buying gold on, but the concept is there! Or if you play one of Sony Online's games, like Star Wars or EverQuest II, you can get yourself trading on the Station Exchange system.

When you've had enough, you can always sell your whole game account. Again, it won't make you rich – WoW accounts with a level 60 and tier 2.5 gear are going on eBay Australia for about \$350.

Short of setting up your own gaming sweatshop, you'll have your work cut out for you to make a living this way. But if you take a more humble approach, you may find some pocket money isn't quite so difficult a proposition.

The Reality: Hard to make big money, but if you play smart you could find a way to make some piggy bank cash.

'THE TROUBLE IS THE INFLUENCE OF CHEAP LABOUR MARKETS ON TRADE'

THE GAME JOURNALIST

Salary (estimate): \$60,000

The Job: How can we write a story about playing games for a living without pointing to the people working for this very magazine who get to do just that. They play, then they write. How hard can that be?

Blogs are a dime a dozen, and pay about as much, so if you want to write about games and get paid for it you'd better find a way to get a break in magazines or newspapers. We took this question straight to the



source – Atomic's gaming powerhouse, Ben Mansill – for the skinny on how you too can write about games for a living (see left).

A GAMER'S LIFE...

So to the victor go the spoils? Only if you have the mettle to make it. Regardless of the avenue you choose to pursue, you'll have to work hard, be committed and make a difference – just like any normal job. If you can have fun while doing it too, then you'll be just that much happier. (E)

THE Fang GAMEPAD

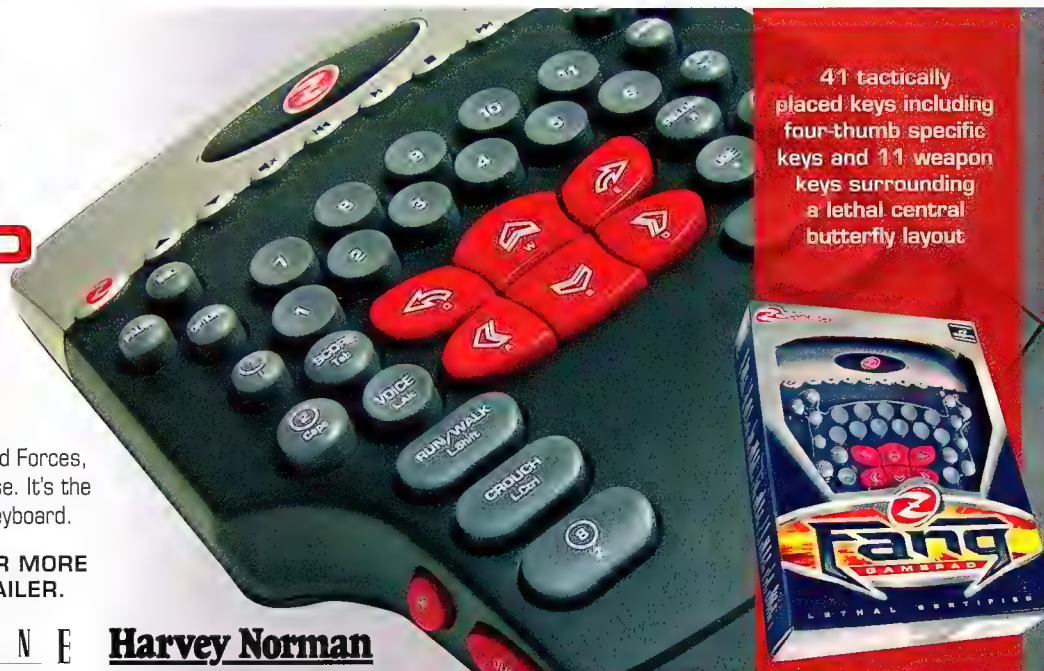
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EBGAMES D O M A Y N E **Harvey Norman**





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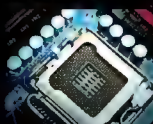


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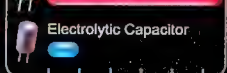
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Electrolytic Capacitor



(DQ6 / DS series)

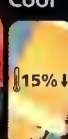
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Silent-Pipe

Crazy Cool



(DQ6 / DS4)



(DQ6)

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(S3 above)



(DQ6 / DS rev. 2.0 series ATX Platform)

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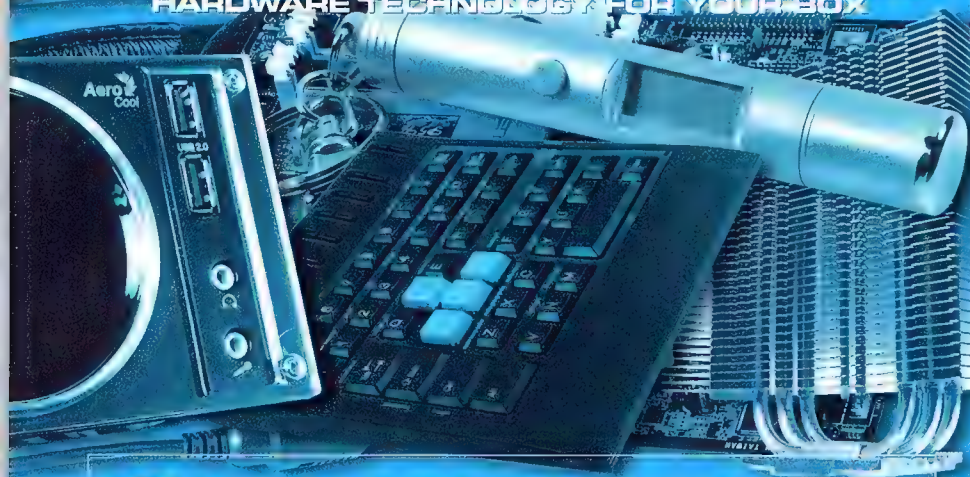
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URL <http://www.t1computers.com.au>

GIGABYTE
TECHNOLOGY

HARDCORE

NEWS, REVIEWS AND ROUNDTUPS ON THE LATEST
HARDWARE TECHNOLOGY FOR YOUR BOX



Congratulations, you're a hardcore fan. You've just won the right to get a hold of... well, not so much. Congratulations problems are more like the rocky McCarthy path.

It seems for the most part, NVIDIA 8800 can operate at the advertised rates but anything higher and it has serious trouble. Or requires something inside the GPU pumping through it before it's even there, about hitting the targets printed on the box. Check out www.level.com/products/motherboards/index.htm as it's a particularly wonderful evening.

That of this is down to the 12.5GHz standard on D1000 being the highest speed, but they've been told they have been no revisions since May, although we're hearing from vendors that the difficulty of creating such speed and hence low yields is the main factor. There's still a push to go 1500, hopefully the 100Hz world will sort itself out by then.

Anyway... the reveal. This month's head-to-head features mainstream graphics cards that all most exceed in value, in honor of the

past test of the series that happened recently. ATI's drivers have improved, improved since the first X1900XTX days in terms of uninstalling and reinstalling. Throughout the test we didn't see any more Catalyst Control Panel in a flash screen that meant that would forget to delete the ATI temporary directory. The installer doesn't delete ATI's drivers as it's tedious as well, although we've had that at the BIOS sense the classic control panel will be gone forever - no! Dream mode uninstalls Vista standards. It's not even out yet and already it's screwing up workflow.

BenQ stands along to contender to the 24" widescreen main ATI's X1900XTX and NVIDIA's 7800GT found down building ASUS P5B Deluxe joins the P5B market, two more tower coolers threaten to blow off the center of gravity of your rig. BenQ joins the fold of the 19W power supplies and ASUS joins up with its gaming monitor - complete with a sub strapped to its head. Cheers.

Take a dive through the pages and see how they all do under the Atomic microscope.

this month



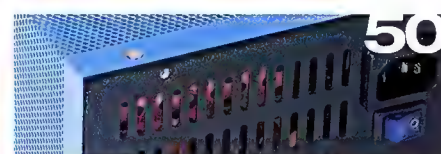
How we test

Test, test, test all day long. Test, test, test while I sing this song.



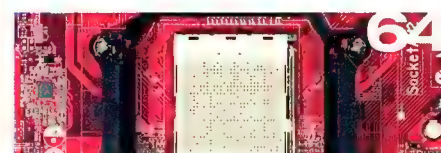
Head to Head

Twelve mainstream SKUs ski into our PCI-E port to battle it out for the value crown.



Gearbox

Some gearboxes have five gears, some have six. We have eight, but then, you expected that.



Kitlog

Like a captain's log, but vastly more interesting. May contain traces of Patrick Stewart.



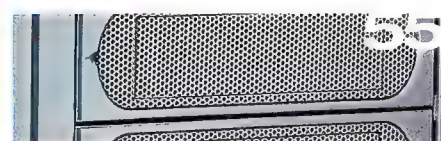
Ground Zero

Dan Rutter can't decide whether he'd rather be a supertechfreak or clueless. We prefer the former.

hardcore reviews



BenQ FP241W



Thermaltake Kandalf

ASUS P5B Deluxe	56
Sapphire X1950XTX	58
XFX 7950GT	58
Noctua NH-U12	60
Scythe Infinity	60
ASUS P191G	62
Enermax Galaxy 1KW PSU	62

WIN 1 OF 10

BURNING CRUSADE ZBOARD KEYSETS PLUS ZBOARD KEYBOARDS

If you're looking forward to the release of Blizzard's highly anticipated expansion to World of Warcraft, then you should also be looking forward to getting prepared. And the best way to do that is to make sure you have the right gear to play the game just right. Thanks to the awesome fellows at WaveTech, we not only have some Burning Crusade Zboard keysets to give away, but some Zboards as well!

Just visit www.atomicmpc.com.au/competitions, click on the Zboard link and answer the question you find there to be in the draw.

atomic

BENCHMARK

How we test,
what we test,
when we test it

3DMark05 and 06 are the legs of our bench. As freely downloadable tools, they allow people all around the world to compete on a single platform, regardless of its indication of real world application, and its ability to keep our table stable.

On the gaming surface, Call of Duty 2 takes first honours in the FPS department. Quake 4 follows closely behind for our OpenGL benchmarks, taking over from where the venerable Doom 3 left off and offering multiple CPU optimisations. Half-Life 2 remains, its market penetration simply too huge to ignore. X3: Reunion makes an appearance, in an effort to have a benchmark that is not an FPS. In the same line, Splinter Cell: Chaos Theory has also been added. Other games do exist. Honest.

All tests are run at 1280x1024, 1600x1200 and 1920x1200 with vsync off, to cater for the most popular LCD resolution, CRT resolution and those who own widescreen monsters respectively.

To hit the CPU, we use LAME MT, a multithreaded version of the

popular MP3 encoder, which is used to compress a standard 30-minute WAV file. Similarly, VirtualDubMod is used to compress a standard 1GB raw video file into XviD at 1300Kb/s. Other CPU specific tests in our stable are Maxon's CineBench and SuperPi Mod. Rounding out the suite, SiSoftware's Sandra tests several subsystems across the board, while HDTach and ATTO Disk Benchmark helpfully provide hard drive scores.

All these tests are run on a Windows XP SP2 platform, running the latest official drivers available. Every test is run three times to eliminate any oddities that may crop up along the way, the final result printed in the magazine being an average of those scores.

Of course, all this is pointless without a standard set of hardware, and as such it is laid out below for the world to see. On with the testing!



The Atomic Hot Award is given only to the best. In our roundups, we differentiate the best further using the following awards:

VALUE AWARD This means the product is the best buy price-wise.

PERFORMANCE AWARD Price isn't a big factor – it just has to make our benchmarks burn and our eyes water.

EXTREME AWARD Forget everything. If it's mind-blowingly amazing, then it'll get an Extreme Award.

BENCHMARKS

Graphics

3DMark05

Game tests only, 4xAA, 8xAF
www.futuremark.com

3DMark06

Game tests only, 4xAA, 8xAF (SM2.0), 8xAF (HDR/SM3.0)
www.futuremark.com

Half-Life 2

Canals custom timedemo, 4xAA, 8xAF, all details highest, HDR off
www.half-life2.com

Splinter Cell: Chaos Theory

Lighthouse Demo, Shader Model 3.0, 8xAF, shadow resolution high, all features on
www.splintercell3.com

X3 Rolling Demo

High settings, auto quality control disabled, glow enabled, 4xAA, 8xAF
www.egosoft.com/games/x3/info_en.php

Call of Duty 2

Hill 40 – Defend custom timedemo, 4xAA, 8xAF, all options highest
www.callofduty2.com

Quake 4

High quality, 4xAA, 8xAF, Multiple CPU support, all options highest
www.quake4game.com

Subsystems

HDTach

www.simplissoftware.com

LAME MT

softlab.technion.ac.il/project/LAME/html/lame.html

VirtualDubMod

virtualdubmod.sf.net

SuperPi Mod

www.xtremesystems.com/pi

Cinebench

www.cinebench.com

SiSoft Sandra

www.sissoftware.co.uk

Everest

www.lavalys.com

Others

DisplayMate

www.displaymate.com

ATI Tool www.techpowerup.com/atitool

RivaTuner

www.guru3d.com/rivatuner

FRAPS

www.fraps.com

CPU-Z www.cpuid.com

Stress Prime 2004
sp2004.fre3.com

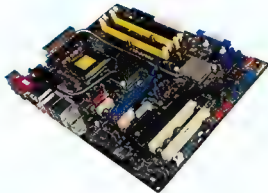
ATOMICBENCH Our standard hardware that gets regular labs lovin'.

intel



▲ Intel Pentium 955 EE

ASUS



▲ ASUS P5N32-SLI Deluxe

OCZ Technology



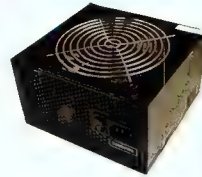
▲ 2GB OCZ PC2-4200EB

WD Western Digital



▲ Western Digital 1500ADFD

PC Case Gear



▲ Seasonic S12 600W

AMD



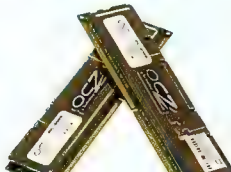
▲ AMD Athlon 64 FX-60

ASUS



▲ ASUS A8N32-SLI Deluxe

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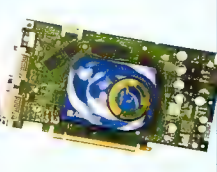
▲ 2GB OCZ PC-4000EB

DELL



▲ Dell 2405FPW

Albatron



▲ Albatron 7900GT

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RAVE REVIEWS

cont.

Aug. 26, 2005

"Absolutely exceptional memory capable of lower latency timings at stock speeds and still pull through with a jaw dropping overclock to boot."

tweaknews.com

Aug. 31, 2005

"In our tests, the PQI3200-1024DBUs turned out terrific performance along with impressive overclocking results....to top it off they're priced to sell!"

hothardware.com



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Core Clock : 450MHz



Bliss 7950GT PCX 256MB Golden Sample »

256MB / 256bit GDDR3
Memory Clock : 1500MHz
Core Clock : 580MHz



Bliss 7900GS PCX 256MB Golden Sample »

256MB / 256bit GDDR3
Memory Clock : 1400MHz
Core Clock : 500MHz



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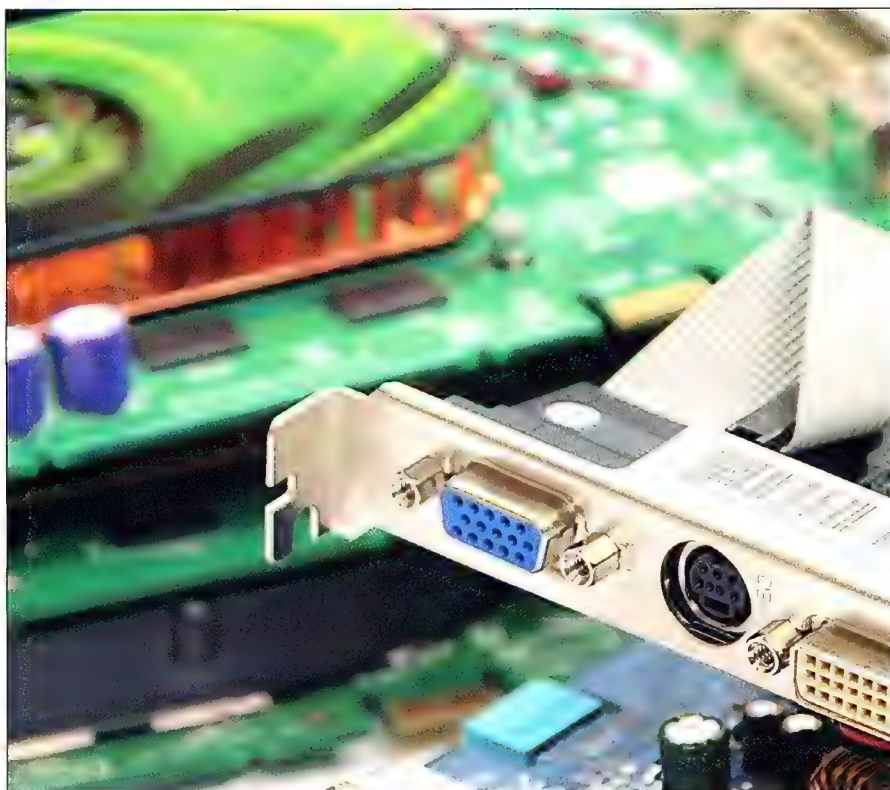
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<http://www.umart.com.au>

HEAD TO HEAD

Bite-sized comparative roundups of the hottest gear



Cheap as 3D chips

Craig Simms puts together a selection of graphics cards for the cash-deprived.

We're guilty of pushing the hardest, hottest and fastest things in *Atomic*, and often neglecting the far larger mainstream market, in which a veritable plethora (say that 10 times quickly) of cards exist. In fact it's here that the two big vendors make their money, and the reason Matrox still exists. The top end 'crown' card is

purely there for bragging rights – being on top, at the very top, creates an image that the rest of a company's cards are pretty dang hot as well, and helps it sell to the mainstream.

The reality of the situation is many of us can't buy the top dogs, let alone two of them for SLI or CrossFire purposes. So we're resigned to grabbing

something in the sub \$600 range, which has its own pitfalls – namely having to wade through almost every graphics card suffix known to man trying to make sense of which one suits. GT, GTX, GTO, XT, XTX, LE, SE, GS, Pro... it all gets bloody confusing. So if you're a generation or two behind and all you want for Christmas is your two more frames, read on and we'll separate the mouse from men, the crap from crisp, the groans from the grunt... well, you get the idea.

There's been a rash of DirectX 9 card revisions lately from both ATI and NVIDIA, no doubt in the attempt to stake claim to the highest performance in each relevant financial tier before Vista hits and makes them all obsolete. Or in short: when the big bang happens, they want to be on top. Kinky.

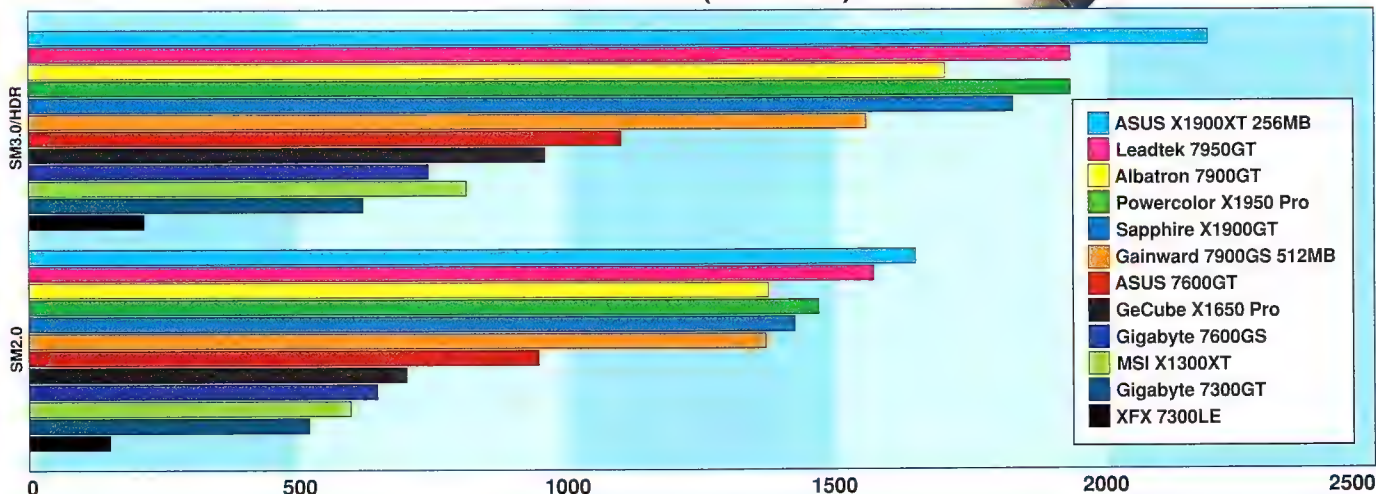
While the X1950XTX has made the jump to GDDR4, nothing else in the mainstream has, nor has anything massively changed architecturally – with the exception of the X1950 Pro, which has been developed on an 80nm process, the first of its kind. We'll be seeing an X1650XT shortly from ATI also built on this process.

The X1950 Pro also marks the birth of 'native' CrossFire – no longer do cards have to be connected through an awkward and time consuming split DVI cable, CrossFire can now be achieved through two flexible SLI-bridge styled connectors – this is the way of the future folks, as the old style will eventually be phased out.

CrossFire has learnt from SLI, and things are now nicer to set up. You'll need two of these to do the job though.



3DMark06 (3DMarks)



There are essentially three segments to the mainstream – entry, mid and high – the fourth enthusiast segment of course being eliminated here and kept for those with pockets deeper than Bill's gambling addiction.

How we tested

We used a restricted version of our usual test suite – 3DMark06 SM2.0, Quake IV and Half-Life 2 with all options set to maximum @ 1280x1024, 4xAA, 8xAF; and 3DMark06 SM3.0/HDR at the same settings with no AA, so NVIDIA and ATI cards could play on a level field. Quake IV is our OpenGL test, Half-Life 2 our DirectX 9 and 3DMark our synthetic. We used the 6.10 beta Catalyst drivers for the ATI cards (except the X1950 Pro, which required a modified 6.9 Catalyst to be recognised),

and ForceWare 91.47 for NVIDIA. This was partnered with an ASUS A8N-SLI Deluxe, 2GB of OCZ PC-4000EB RAM and an Athlon 64 FX-60.

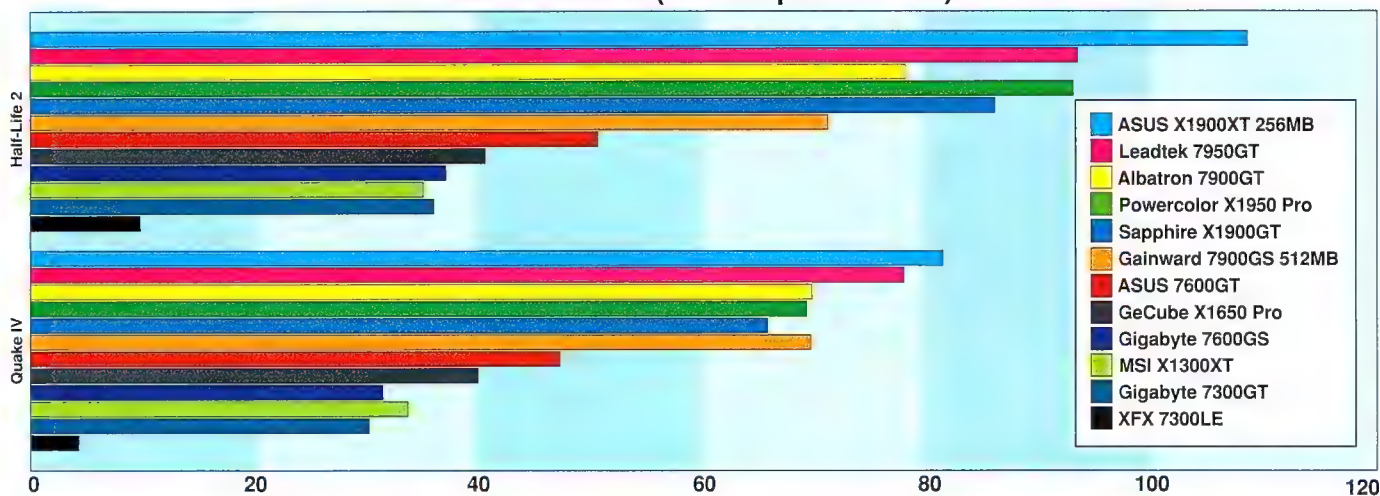
Now for a lot of these cards, the above tests are a pretty hard slog – a lot of them don't have any business in doing HDR or AA – they simply don't have the chops, but that's our standard bench and allows us to compare to top end cards. Keep in mind that a low score here doesn't mean that a game is unplayable by any means on a certain card – if you strip off anti-aliasing for instance and bump down to trilinear filtering instead of anisotropic you could quite nicely buy yourself anywhere between eight and 25 frames per second. Not to mention bumping texture details down and other options means that playability shouldn't be too much of a stretch, except maybe for the very

bottom cards on the latest games. Mind you, we won't be held responsible for your game looking like the smeared vision of a mud-stricken hobo after being hit by a semi-trailer carrying a boat filled with epileptic rednecks having a rave party.

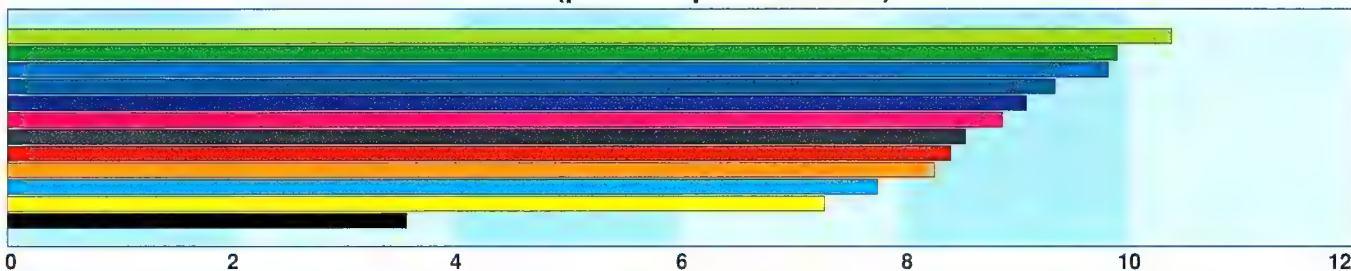
Prices

We realise that RRP's aren't often met – heck, no matter what price we put in, it will change by the time you read this. For this Head to head, we've taken the lowest 10 prices we can find and averaged them to supply a 'street price', that will hopefully be more indicative of the product cost. See what you think, and leave some feedback in the forums (www.atomicmpc.com.au) as to whether or not you think this should be a magazine-wide feature.

Game scores (frames per second)



Value (price vs performance)



▲ The associated value of each card, figured out by the crazy formula of all the results added together divided by the price.

ASUS X1900XT 256MB

Street price **\$500** Supplier **ASUS** Website **www.asus.com.tw**
 Clocks **625/1450MHz** Memory **256MB GDDR3** Outputs **2x DVI, video breakout** Needs power **Yes**
 Pixel shader processors **48** Vertex pipelines **8**

The X1900XT 256MB is exactly that – an X1900XT that's been cut down to half its memory, and takes a price hit as a result. Apart from that it's identical, meaning that you can get a hefty card if you're willing to stretch your dollar a little further. Unfortunately this also means it inherits the loud-arse cooler that makes your teeth vibrate, small children cry and prophets of doom claim the divine wind has come to lift us all to heaven above when it hits full volume. This card comfortably smashes the 7950GT all over the park performance-wise in everything but one area – price. You can get other brands for about \$100 cheaper, making it viable for the average Joe.



GeCube X1650 Pro

Street price **\$206** Supplier **GeCube** Website **www.gecube.com**
 Clocks **600/1400MHz** Memory **256MB GDDR3** Outputs **2x DVI, video breakout** Needs power **No**
 Pixel shader processors **12** Vertex pipelines **5**

The best we can make out, this new card is meant to supersede the X1600 and take on the ancient 7600GT. It succeeds at the first task, but just like its predecessor fails miserably in the second as you can see from the results. A better matched competitor would be the amazing X1800GTO, if you can get one.

Still, RoHS compliancy and a fancy new larger heatsink and fan are there, so if you feel you need to bat for the red team, then this sits solidly in the middle of the pack. However, we would suggest that your money is best spent elsewhere for gaming – the advantage here would only be ATI's superior video output quality.



Sapphire X1900GT

Price **\$336** Supplier **Sapphire** Website **www.sapphiretech.com**
 Clocks **575/1200MHz** Memory **256MB GDDR3** Outputs **2x DVI, video breakout** Needs power **Yes**
 Pixel shader processors **36** Vertex pipelines **8**

The X1900GT is yet another cut down version of the X1900XT, both in clocks and the fact that it has a single slot cooler. It has also lost 12 pixel shader processors, somewhat neutering the card, but still providing more than NVIDIA's competing 7900GS. It also means it can make the transition from dual slot to single slot.

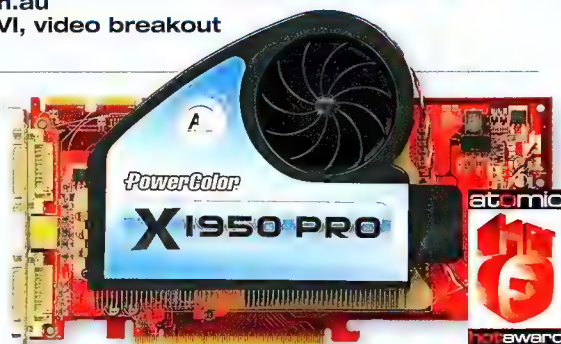
Still, given the minimal price difference, superior cooling and clocks we'd go the newer X1950 Pro instead, which looks like it is destined to replace this model soon.



Powercolor X1950 Pro

Price **\$360** Supplier **Australia IT** Website **www.australiat.com.au**
 Clocks **600/1400MHz** Memory **256MB GDDR3** Outputs **2x DVI, video breakout**
 Needs power **Yes** Pixel shader processors **36** Vertex pipelines **8**

The first 80nm card, it is still host to GDDR3. Also new is the double fingerboards for native CrossFire – two internal flexible SLI-styled bridges required rather than the bulky external cable. Interesting is the lack of the included bridges though, we assume relying on the motherboard vendor to supply them instead. If someone has bought an older CrossFire board this could be an issue. This particular X1950 comes clocked a little higher with a tiny 20MHz more on the core, and comes with a quiet and cool Arctic Cooling Accelero in place of the default cooler – which will block the slot next to it.



MSI X1300XT

Street price **\$139** Supplier **MSI** Website **www.msi.com.tw**
 Clocks **550/1400MHz** Memory **256MB GDDR2** Outputs **1x DVI, 1x D-Sub, video breakout** Needs power **No**
 Pixel shader processors **12** Vertex pipelines **5**

ATI has this market segment over the old 7300GT, thanks to the refresh of its lower end. It's done this by renaming and repositioning the old X1600 Pro. Consequently it's clocked 50MHz higher on core than the original X1300, but 100MHz less than the older Pro model.

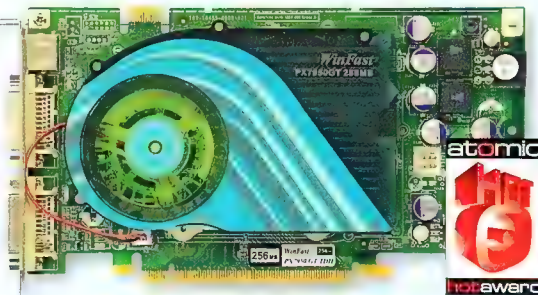
Memory has been ramped to match the Pro at 800MHz, a 300MHz improvement over the first X1300. Confused enough yet? Either way at this price point and performance, unless you need a half height card this is the perfect entry level model for the budget cautious.



Leadtek 7950GT

Street price **\$416** Supplier **Rectron** Website **www.rectron.com.au**
 Clocks **550/1400MHz** Memory **256MB GDDR3** Outputs **2x DVI, video breakout** Needs power **Yes**
 Pixel shader processors **36** Vertex pipelines **5**

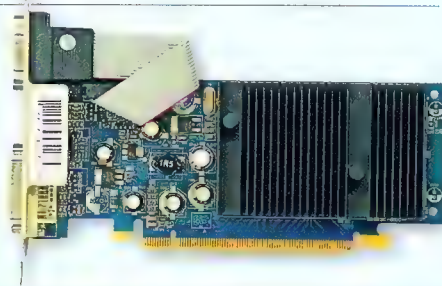
The 7950 is a bloody nice card, only to be topped performance-wise by ATI's more expensive X1900XT 256MB edition – although for the most part the X1950 Pro is nipping at its heels. Leadtek's card is also damn good value. It's a whole lot better than the old 7900GT, and paradoxically sells for about the same price. The only thing that makes us recommend the X1950 Pro over this is the crazily aggressive price offered by ATI's partners. But we think NVIDIA might decide a few price drops are in order soon considering the more attractive X1950 Pro and X1900XT 256MB prices.



XFX 7300LE

Price **\$86** Supplier **Multimedia Technology** Website **www.mmt.com.au**
 Clocks **450/800MHz** Memory **128MB GDDR** Outputs **1x DVI, 1x D-Sub, S-Video** Needs power **No**
 Pixel shader processors **4** Vertex pipelines **3**

Don't buy this card for games. Check out the scores – we even had to rig up a 120mm high power fan to complete the Quake IV benchmark, the passive heatsink not coping with the load and causing the game to crash. In saying that, this little thing is clearly aimed at the home theatre or low end server box – it's half height and passively cooled. Given this, it does admirably, especially if you're looking for a cheap and decent card, although the lack of video out options are puzzling considering the target market. As usual XFX has tweaked a little, raising the default memory speed from 667MHz to 800MHz. Note the use of DDR1 64 bit memory, and lack of SLI.

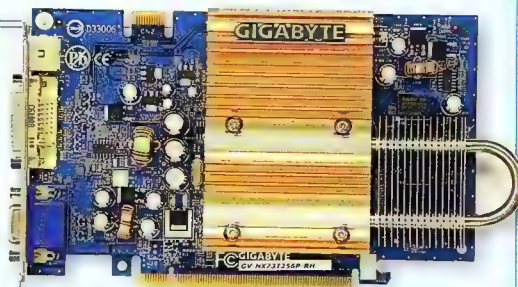


Gigabyte 7300GT

Price **\$132** Supplier **Gigabyte** Website **www.gigabyte.com.tw**
 Clocks **450/800MHz** Memory **256MB GDDR2** Outputs **1x DVI, 1x D-Sub, S-Video** Needs power **No**
 Pixel shader processors **8** Vertex pipelines **4**

Ye olde 7300GT is looking a bit long in the tooth these days, especially compared to the X1300XT – fungus and plaque build up have gotten to what is essentially a cut down 7600.

Gigabyte has given us niceties in the form of a higher core and memory speed than usual, and also included passive cooling – which needed extra active cooling so the thing didn't overheat and crash during the Quake IV tests, so if you want one do yourself a favour and grab a version with a fan. As an advantage over the other 7300 flavours, if you're utterly insane, the GT can be put in SLI.

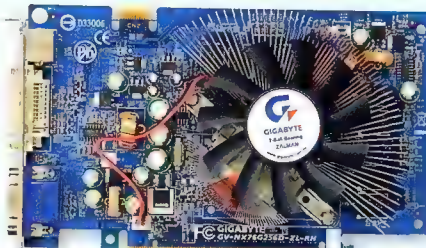


Gigabyte 7600GS

Street price **\$161** Supplier **Gigabyte** Website **www.gigabyte.com.tw**
 Clocks **400/800MHz** Memory **256MB GDDR2** Outputs **1x DVI, 1x D-Sub, S-Video** Needs power **No**
 Pixel shader processors **12** Vertex pipelines **5**

Surprise! As the 7300GT is a modified 7600, it's only logical that the 7600GS costs a little more than the 7300GT and doesn't perform much better, despite the increased shader units. Fortunately this one is actively cooled with a Zalman VF700-AICu HSF, which stays nice and quiet.

Still, it does just outperform the X1300XT, but only just – and the price difference is enough to make us swing the ATI way here without a second thought. Why video card companies feel the need to fill every possible indeterminate gap escapes us – as does the purpose of this card's existence.

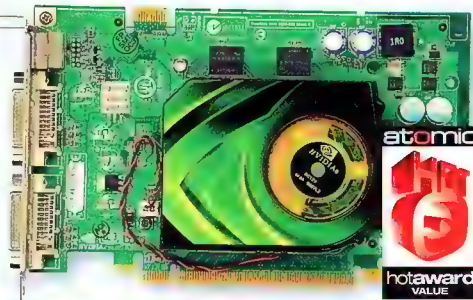


ASUS 7600GT

Street price **\$255** Supplier **ASUS** Website **www.asus.com.tw**
 Clocks **560/1400MHz** Memory **256MB GDDR3** Outputs **2x DVI, S-Video** Needs power **No**
 Pixel shader processors **12** Vertex pipelines **5**

The big brother of the GS, the older 7600GT dominates over new X1650 Pro, leaving us waiting for the even newer X1650XT to see if ATI can seal this level of the market once and for all.

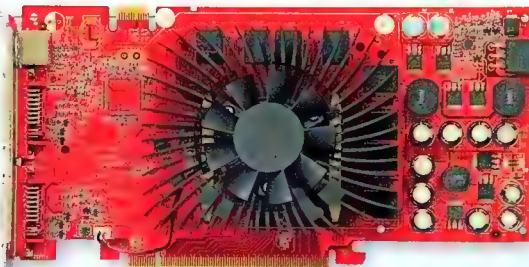
A \$90 price hike on the GS sees a considerable performance increase, but this is far and away the best mid level card you can buy today, as it was when it was first released at the beginning of the year. If you want to splurge a bit more, you could try the X1800GTO, although this is due to be superseded very soon by the updated X1900GTO.



Gainward 7900GS 512MB

Price **\$359** Supplier **Australia IT** Website **www.australiait.com.au**
 Clocks **450/1320MHz** Memory **512MB GDDR3** Outputs **2x DVI, video breakout** Needs power **Yes**
 Pixel shader processors **20** Vertex pipelines **7**

This dual slot card follows the Gainward trend of making NVIDIA cards red, presumably to shock – and it works. An understated matte black HSF with some excellent mounting clips features in the middle. This card fills the gap between the medium and high end in terms of mainstream cards, and if you need to save on cash then it makes sense, even if it does cut down on the shader units. If you're in this price arena, you should consider the 7950GT or X1950 Pro. GS seems to mean 'Gap Space', as like the 7600GS thanks to unexpected rivals it seems to just be filling space between pricing tiers.

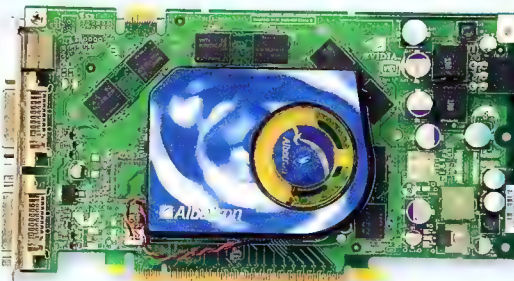


Albatron 7900GT

Price **\$425** Supplier **Albatron** Website **www.albatron.com.tw**
 Clocks **450/1320MHz** Memory **256MB GDDR3** Outputs **2x DVI, video breakout** Needs power **Yes**
 Pixel shader processors **24** Vertex pipelines **8**

The venerable 7900GT was worth its weight in gold a few months ago – highly overclockable, respectable performance (sometimes exceeding the 7900GTX when put in SLI), and generally making the gaming world happy.

But the 7950 and X1950 Pro have finally put it to pasture, with the equivalent of a 12 gauge to the head. It still maintains about the same price as the 7950, or in this case slightly higher – which is slightly confusing considering the age and performance gap. Do yourself a favour and go with the newer cards.



Verdict

There's a lot of cards here – the only conspicuous absence being the X1800GTO, which as mentioned is soon to be superseded by the X1900GTO. Also in the GTO stakes, whispers in the wind tell us the 7900GTO should be able to hit 7900GTX speeds when overclocked without batting an eyelid. We await eagerly for that one.

Looking at overall winners, if we take it purely from a bang for buck aspect – as you can see from the value graph – the X1300XT surprisingly gives the absolute best performance/price ratio, followed by the X1950 Pro, then the X1900GT, 7300GT, 7600GT and the 7950GT.

In terms of the high end of the market, the

X1950 Pro is quite the little beast, pretty much invalidating the X1900GT, 7900GS and 7900GT by pure virtue of price and performance. Tagged in with the Arctic Cooling HSF and you have quite the winner – kudos to Powercolor. So chalk it up as our favourite mainstream card. While the 7950GT is also an excellent card, the price difference compared to the X1950 Pro makes it a lesser choice, despite a better performance overall. Keep watching it though, we expect pricing will get aggressive on this number.

The X1900XT 256MB is honestly more for those who want an enthusiast card but can't quite stretch the whole way. Hopefully there'll be price

cuts on it soon enough, making it accessible to the populous at large.

For the medium end, it has to be the hardy 7600GT, or before they disappear from stock it may be worth tracking down an X1800GTO. While price wise it doesn't hit the same value strings as the GS, you'll be thankful for the extra grunt.

Finally at the entry level it is undoubtedly the X1300XT that takes the cake, eats it, then defecates it on the competition. With performance occasionally exceeding that of a 7600GS and an amazing price to boot, you can't go wrong.

But then, of course, there's DirectX 10...



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Razer Barracuda Headphones

Supplier **Altech**
Website www.altech.com.au
Price \$190

Instead of ending in an avalanche of multicoloured 3.5mm plugs, these surround headphones end in a DVI plug. Odd, you may think, until you see the matching Barracuda IAS sound card, which is equipped with a DVI socket – electrically wiring it to all the right places for audio.

It also comes with a breakout cable, which ends in all the 3.5mm jacks you'd be expecting. You'll still need power from a USB port to get the headphones running, but when you do, it's one of the better examples of surround headphones, albeit a little pricey.



Aerocool Gatewatch 2

Supplier **PC Case Gear** Website www.pccasegear.com.au
Price \$79

Fandangler! Yes, it's a word. It's the word used to describe the gadget that sits on the edge of your PC and inevitably fandangles. If you ever wanted to know what your components are doing, or how hot they are, this retro-futuristic baby is the one to tell you, with a spiffingly white on blue display. Who said computers couldn't be cool?



Alphacool Water Cooled PSU

Supplier **ChilledPC** Website www.chilledpc.com.au Price \$450

Of all things we didn't expect to see water-cooled, this was the last. Well, it would have been the last after RAM, but we've already seen that and crazier things. Somehow the thought of mixing water with our main power supply makes us nervous, but if you need to hydro cool everything, it's obviously your ticket. We'll be taking a closer look at this interesting beast soon, so hold your breath and wait for the review.



EZ Power Supply Tester

Supplier **PC Case Gear** Website www.pccasegear.com.au Price \$36

If you're scared witless of sticking in the probes of an unprotected multimeter into your PSU pins, then the EZ Power Supply Tester will make things, well, easy. You can throw in pretty much any cord from molex to 24 pin, to make sure your PSU is delivering the power punch it should.

◀ SLAPPA CD Cases

Supplier PC Case Gear

Website www.pccasegear.com.au
Price \$69 for 240 capacity, \$199 for 600 capacity

Holy heck on wheels. Meet the Rolls Royce of CD cases. These things have ridiculous build quality, the 600 is even on wheels and with a telescopic handle like airport luggage. Unfortunately they hit their capacity by adding a second disc pocket behind the first – a bastard for cataloguing. Still, if you're a DJ on the move you can't go past these.



Samsung K5 ▶ MP3 Player

Supplier Samsung

Website www.samsung.com/au
Price \$369 (4GB)

Today, MP3 players will have an added feature on top of just being a standard MP3 player. Now you have MP3 players that play videos, display photos or even measure how far you run. But Samsung has released a MP3 player with a very obvious feature... an in-built speaker. Modelled after its slick LCD TV's, the K5 is great not just as an MP3 player but also if want to fill a small room with your favourite tracks. Plus, the sound quality is pretty good for such a small speaker.

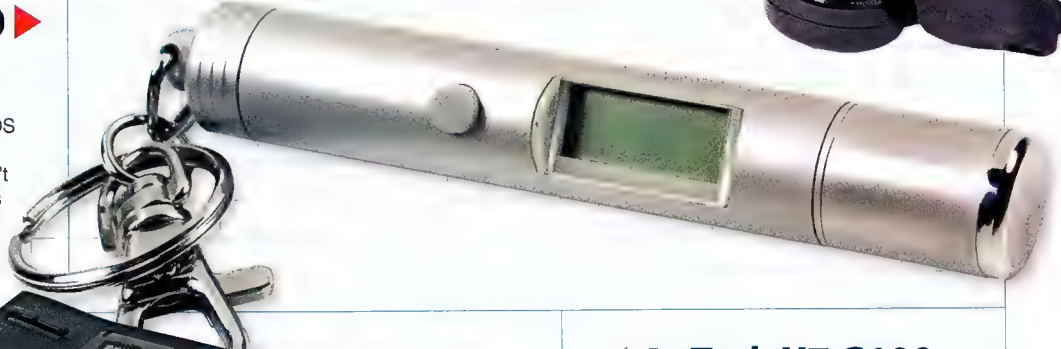


Thermohawk 200 ▶

Supplier PC Case Gear

Website www.pccasegear.com.au
Price \$65

Never have to rely on inaccurate BIOS temperature readings again! Well, perhaps not, as the Thermohawk isn't crazy accurate, but it definitely does the job and does it well. Just point it at the subject you want to know the temperature of and it'll display back in either Fahrenheit or Celsius. Ain't technology grand?



◀ A4Tech X7 G100

Supplier Protac

Website www.protac.com.au
Price \$38

Essentially a reorganised half keyboard, the X7 G100 is actually sturdy compared to its competitors. The only things revealing its gamer angle are the rubber WASD keys, the rearranged keys from the right hand side of the keyboard for quicker access and the plastic overlay for Counter-Strike, which sits just as understatedly around the keys. A Half-Life 2 overlay is also included. The enlarged rubber keys are a bit distracting because you're used to consistent sizing, however if you really need to speed up your transactions in CS, it's not a bad buy.





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- NVIDIA® GeForce™ GO 7600
- 17" TFT Wide Screen
- 4-in-1 Card Reader
- DVD Super Multi Burner
- 4 Speakers + 1 Subwoofer
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BenQ FP241W

Craig Simms says ThanQ to BenQ.

SPECIFICATION

Price \$1599
Supplier BenQ
Website www.benq.com.au
Specifications 24"; 6ms G2G;
1000:1 contrast ratio; 500cd/m²;
AU Optonics panel; D-Sub, DVI-D,
S-Video, composite, component,
HDMI; defective free 7 days from
purchase; thereafter no bright
dots/5 dark dots over 3yr warranty.

BenQ's last 24" monitor wasn't that special – in fact a lot of BenQ's we've seen simply weren't up to scratch, so imagine our surprise when the best 24" monitor so far simply sauntered into our labs.

It's not perfect, to be sure – BenQ still insists on putting its buttons on the side which is vastly annoying, the menu is excessively slow to respond and the base is not heavy enough when trying to swivel the panel, resulting in the whole unit being swung instead.

All the usual adjustments are there – height, swivel, tilt and rotate, so you'll be most comfortable no matter which nook or cranny you shove it in. The range of height adjustment can only be described as monolithic – the neck just keeps going and going.

After the usual switching off presets and reverting to a custom mode to gain a neutral cast, we found we had to drop the RGB values to about 45 to stop the whites blowing out. Once this

Gaming is fantastically immersive, as it tends to be on 24".

was achieved, DisplayMate was fired up and the FP241W romped through all the tests, displaying the full 256-colour greyscale gamut and showing no problems with colour gradients, horizontal or vertical.

Out of the Dell 2407FPW, Samsung 244T and the BenQ FP241W, only the BenQ uses an AU Optonics panel, the others use an identical Samsung.

The monitor supports DVI, D-Sub, component, composite, S-Video and HDMI, covering pretty much any video input you care to, well, input.

Unfortunately like the Samsung the BenQ has no hardware scaling options, meaning that everything is stretched to the full screen. This can be circumvented through your video card control panel, but through non-graphics card inputs like component or S-Video you're stuck with fullscreen. In today's HD world that means stretching from 16:9 to 16:10, creating unsightly deformations. Despite its leanings towards a multimedia monitor (heck, it has an HDMI input!), thanks to this oversight like the Samsung it really

should only be used for PCs.

Colours are great and gaming is fantastically immersive as it tends to be on

a 24" screen, without being as overwhelming as the larger 30" screens. The 6ms response time really kicks in making the experience very nice indeed. This will be reportedly improved with the BenQ FP241WZ which features Black Frame Insertion – the splicing in of a black screen every few frames to help reduce the apparent visibility of ghosting – effectively attempting to wipe the human retina of the previous image so things appear a little sharper. This will of course bring a price premium, so we look forward to seeing if it is worth it.

PIP is of course available, and position and size is of course customisable. The most useful swap function also exists here, allowing you to switch the small image to full screen and vice versa should you wish to focus on your console gaming or video rather than work, but still keep a watchful eye on Trillian.

Two USB ports dot the side and one on the top is there for a webcam – not the greatest of placements but if you need the extra ports they're always welcome. It appears Dell is still the only one building in the uber useful card readers, but if you're not a photographer this shouldn't bother you.

BenQ has pumped out a fantastic product at a decent price point, and it's to be commended for the effort. Now allow hardware one-to-one scaling, make the base heavier and move your buttons to the front, and you have yourself a perfect product and a hot award coming your way. We await the results.

SCORE
8.5
OUT OF 10

BENQ FP241W



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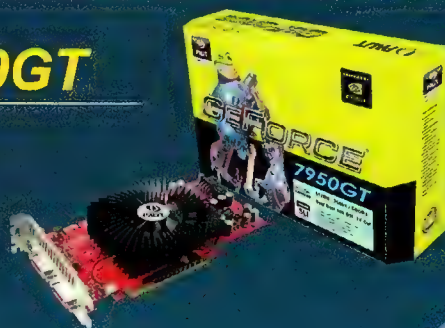
Frobot

Enhance your gaming experience
to the Extreme



GeForce 7950GT

512MB / 256bit GDDR3
Dual Dual-link DVI / TV-Out
Core speed : 550MHz
Memory speed : 1400MHz



GeForce 7900GS Series



7900GS Sonic Overclocking edition

256MB / 256bit GDDR3
Dual Dual-link DVI / TV-Out
Core speed : 500MHz
Memory speed : 1400MHz



7900GS

256/512MB / 256bit GDDR3
Dual Dual-link DVI / TV-Out
Core speed : 450MHz
Memory speed : 1320MHz



Distributor: **BCSY** BCSY V-NET PTY LTD. Tel: 02-8799 3813
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Thermaltake Kandalf LCS

Craig Simms checks out Kandalf, the grey wizard of cooling.

SPECIFICATION

Price \$440

Supplier Thermaltake

Website www.thermaltake.com.au

Specifications Full tower;

6x 3.5" bays; 11 potential 5.25"

bays; water cooled;

quick release mechanisms;

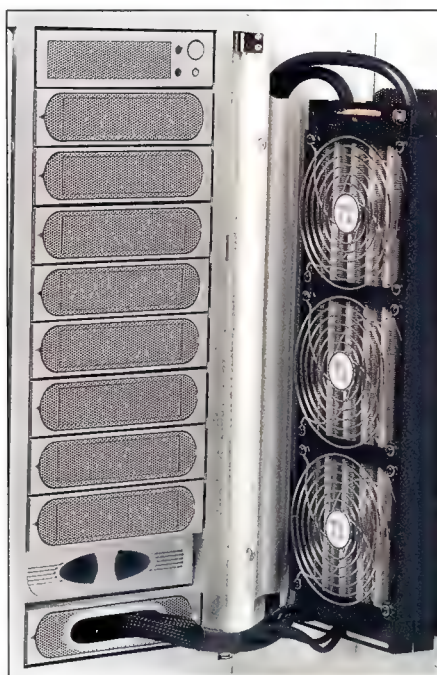
front doors.

The Kandalf comes firmly from the Enterprise-E era, militaristic Federation styling intact. The swing open front doors conceal a radiator with three 120mm fans, the middle one glowing blue to highlight the Thermaltake logo. Water pipes snake into the bottom of the case under the eleven 5.25" bays and the little utility tray that often features in the high end Thermaltakes.

You say 11? That's incredible! Well, not quite. The top bay features the power button and it would be bloody hard to fit an optical drive in there thanks to retention clips from the plastic bit on top, and the water pipes go through the bottom bay, so you're effectively restricted to nine bays.

Port extenders for Firewire, USB, headphones and microphone sit on the top under a flip-top plastic lid – however the plastic feels a little cheap and flimsy and ruins the overall effect of the case. A large air hole grid is also present here, meaning this case is definitely not for those after quietness.

Popping off the huge thumbscrew that holds down the latched, windowed case door and prising it off, three of the 5.25" bays are revealed to be filled with a removable drive cage for three 3.5" hard drives, with space for a 120mm fan at the front – unfortunately not provided. A removable floppy drive bay sits above it.



An interesting quick release system is used here in which the retention mechanism is squeezed and then lifted away from the holes in either the drive or drive bays – it works well, however can be a little finicky to get back into place.

Unfortunately the old quick release mechanism above the PCI slots is still there, making it incredibly difficult to fit some graphics cards – such as the 7950GX2 – into the case. Our recommendation? Get rid of the bastard ASAP, which Thermaltake has thankfully made easy through the removal of two screws.

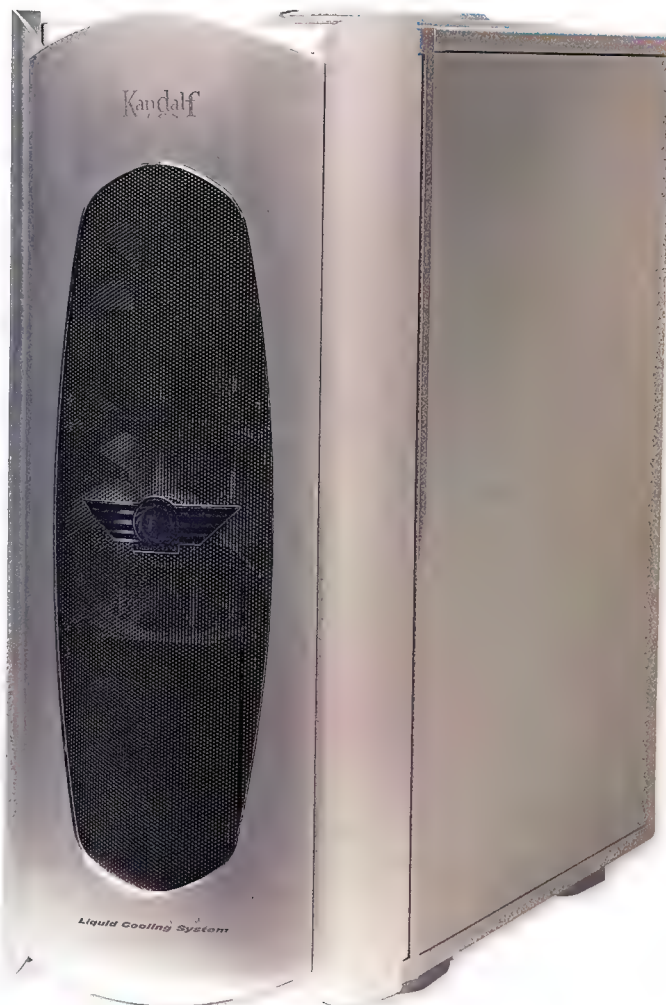
A second bay for three more hard drives resides up the back where the power supply usually goes, cooled by a 90mm fan, and below it a blue glowing 120mm fan that makes an indecent hum is mounted. To accommodate this, the PSU is slid sideways.

The motherboard tray is not removable, although the back plate is, so access shouldn't be too restricted.

Hooking up the built-in water cooling system took about five minutes, including the time to make sure all air bubbles were clear. The reservoir features a wide mouth, so just like Solo you can slam it down fast. Well, the coolant anyway. And that's pouring it into the reservoir, not drinking from it, which would be stupid and would probably have you hospitalised, creating hilarious stories for your friends for decades and causing you to pee green for a week. Yes sir, very *Atomic*.

The pump is a little noisy but tolerable, we do wish however that quieter 120mm fans were used, having been spoiled by the likes of Nexus.

Firing up Chernobyl in an ambient temperature of 26°C the kit kept the little heat generator to an admirable 40°C – it has decent cooling chops.



“A large air hole grid is present, so this case is definitely not for those after quietness.”

The Kandalf is a decent case that will get you into watercooling without having to think too much, and you have to consider that this inclusion is also set at a decent price. A few nagging features hold it back from greatness though – and we look forward to seeing these fixed in the next revision.

SCORE **8.0** OUT OF 10

ASUS P5B Deluxe Wi-Fi

Craig Simms peers perspicaciously per P965 with the P5B.

SPECIFICATION

Price **\$395**
 Supplier **ASUS**
 Website **www.asus.com.tw**
 Specifications **Socket 775;**
P965 chipset; FireWire; 802.11g;
1x PCI-E Gb Ethernet; 1x PCI Gb
Ethernet; ADI HD Audio;
coax/optical SPDIF

Hands up who doesn't own a Core 2 Duo yet? Right, hurry up and get on the bandwagon already! The world keeps on spinning and you're being left behind. Sheesh, we'll be up to Core 2 Quad soon, and then it'll all be over. Mind you it'll be some time before the majority of applications actually use four cores, but at least if you grab a 965 board right now, compatibility is only a flash away when the need becomes pressing.

“The P965 boards are now the darlings of the industry... all we need is NVIDIA to enable SLI (hah!)”

The P965 boards are now the darlings of the industry, with the new Memory Controller Hub and ICH8 southbridge dancing around the older boards, and the inclusion of a somewhat hobbled CrossFire support making it a tempting acquisition – now all we need is NVIDIA to enable SLI (hah!) and we'll have one of the best boards on the market to date. With ATI's RD600 nowhere to be seen (supposedly DFI will be gracing the world with it soon), NVIDIA's nForce 590 for Intel rarer than

Eminem singing Barry Manilow tunes, and its 680i yet to come, Intel has a near exclusive market.

ASUS's P5B Deluxe is its P965 entrant into the rapidly expanding Core 2 Duo market, and like most boards these days is adorned by a snaking silent heatpipe connected between passive sinks to keep the noise down.

The usual configuration of ASUS ports sits at the back, with the archaic serial port, optical/coax SPDIF, FireWire, eSATA, HD Audio, four USB ports and two Marvell Yukon driven Gigabit Ethernet ports. Here ASUS have been a little cheap though, as one of the ports sits on the PCI bus rather than the PCI-E, giving it a higher chance of saturating the poor aging interface, especially if you have other devices sharing it such as a sound card. Quite frankly we'd rather have that Ethernet port on PCI-E than have the included Realtek 802.11g wireless card, and while a non-wireless edition of the P5B Deluxe is available, the offending port is still wired through PCI. Tsk, tsk, that's one port more than the Gigabyte offers, so if you need dual Ethernet and just after the P965, this is the puppy for you.

Sound is provided through the ADI1988 chip, which much like the Realtek alternative does the job, but isn't crash hot. Seriously, somebody buy out Creative's sound card division already. With the dwindling sound card market and Creative being all too focused on taking out Apple, now is prime time. C'mon ASUS, you know you can. Or at least

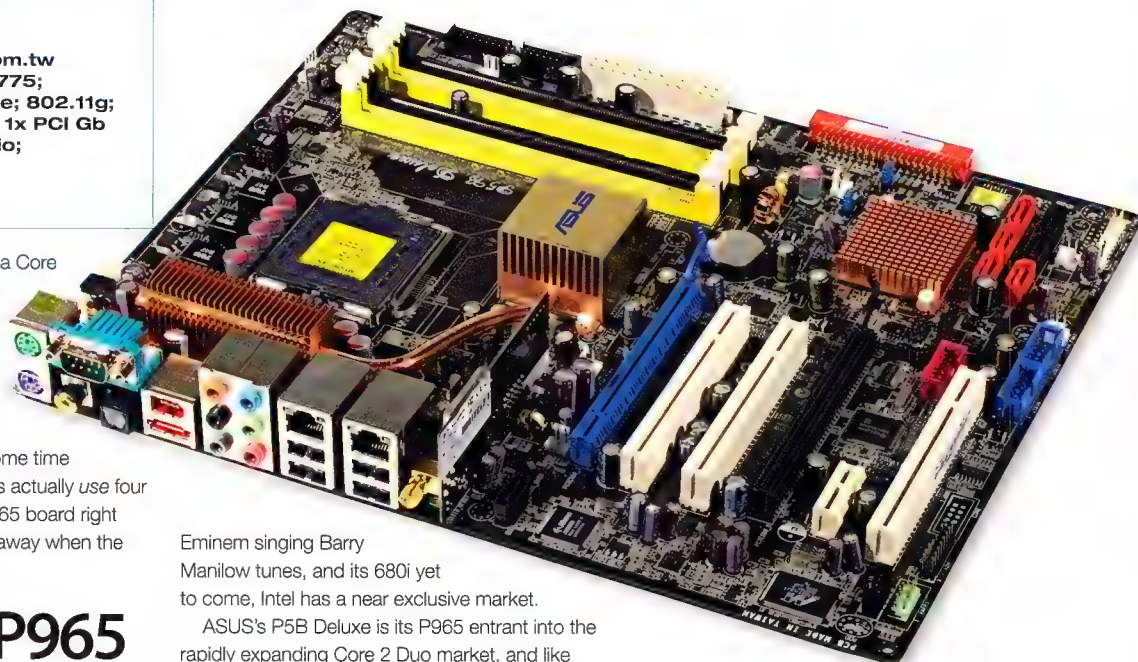
get your buddy NVIDIA to do some investing and bring back Soundstorm.

Unlike Gigabyte's offering, ASUS has been sensible with the allocation of PCI-E x1 slots, only including one while giving three PCI slots, and the requisite two PCI-E x16. This means that those with older dedicated sound cards, TV tuners or physics cards will find this board a lot more palatable than some other offerings.

SATA allocation is also acceptable, with six ports at the front, and one internal and one eSATA being driven by the JMicron JMB363 controller at the back. This also controls the PATA port at the front of the board.

In the overclocking stakes it had almost as much grunt as the Gigabyte, managing a 330MHz FSB stable to the Big G's 335 – a matter of a whole 5MHz. An almost negligible difference, but to those trying to set records, an important one we guess. In saying this the range of voltage options are nicer than the Gigabyte, and the ASUS logo on the board does glow pretty colours. That has to count for something, just like LEDs on HSFs clearly make them a lot cooler.

There's nothing much more to say about the board other than it displays the usual ASUS attention to build quality and presents a solid investment on anyone's behalf. If you're in the market for a Core 2 Duo board and need dual Ethernet, snaffle this one up now.



	Gigabyte GA-965P-DQ6	ASUS P5B Deluxe
Sandra Processor Arithmetic Dhrystone	27,044	26,957
Sandra Processor Arithmetic Whetstone	18,611	18,484
Sandra Memory Bandwidth Integer (MB/s)	5632	5376
Sandra Memory Bandwidth Floating Point (MB/s)	5646	5376
3DMark06	5282	5274

SCORE

8.5

OUT OF 10



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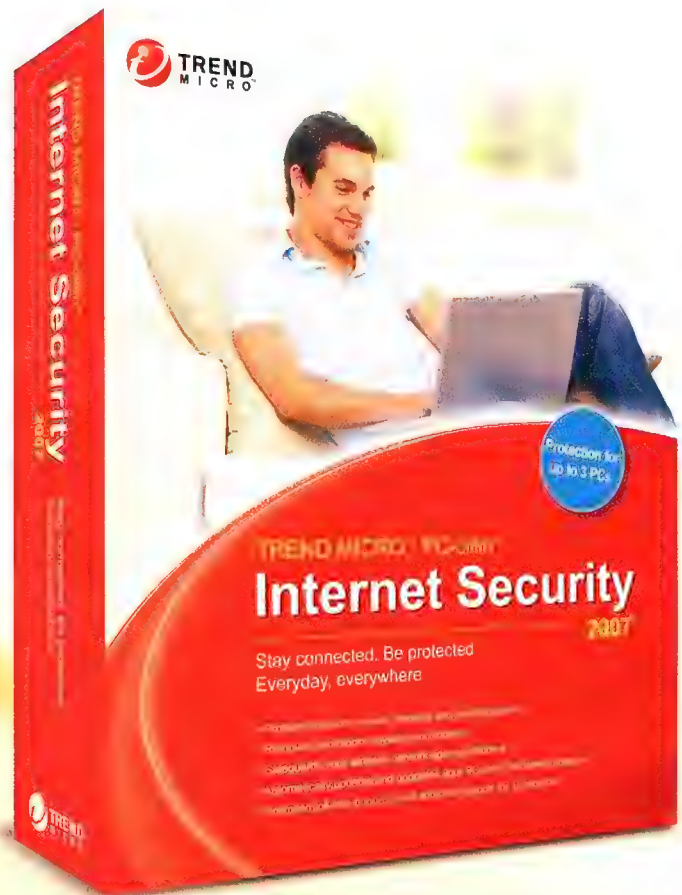
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Sapphire X1950XTX

SPECS

Price \$740
Supplier Sapphire
Website www.sapphiretech.com
Specifications 650MHz core;
 2GHz effective memory;
 90nm; PCI-E; 512MB GDDR4;
 DirectX 9.0.

The best thing about this card isn't the fact that it uses the brand spanking new GDDR4 memory, or that it hits an effective 2GHz clock speed. Nor is it the fact that it's the single fastest GPU on the planet at the moment (disregarding the presence of the 7950GX2 anomaly).

When you pull 2037 and 2602 in the SM2.0 and SM3.0 tests in 3DMark06 respectively at 1280x1024, it's not a bad haul. Neither is 92.9fps in Quake 4, or 121.75fps in Half-Life 2. Bump the res up to 1600x1200 and it still does well, at 1792, 2143, 75.8fps and 108.03fps. All this was using the Catalyst 6.10 beta drivers, as the 6.9s don't recognise the card.

It's not even the redesigned, funky translucent red cooler – which we suspect is partly based on HIS' IceQ3. Although it has the potential to get almost as painfully loud as its predecessor, for the most part remains it's just a smidgen louder than the uber quiet 7900GTX, making us all sigh in relief.

In fact the number one remarkable grace of the X1950XTX is that it's so bloody close in price to its

predecessor the X1900XTX (on the street, anyway), despite the new memory and funky cooler.

For comparison we yanked a X1900XT from the labs (650MHz/775MHz) shelves and subjected it to the same tests, which yielded 1934, 2509, 87.6fps and 119.96fps at 1280x1024, and 1692, 2065, 73.7fps and 103.87fps at 1600x1200 – revealing the X1950XTX as really not that much faster than the X1900XT. This is unsurprising considering the lack of core speed change.

We must admit we don't quite understand the need for this card, considering the performance is so close to the previous one – in fact all the current refreshes are questionable considering the onset of DirectX 10.

But if you're tossing up between an X1900 and an X1950, get this one. The lower fan volume will save your sanity.

CS

SCORE
8.0
 OUT OF 10



XFX 7950GT Extreme

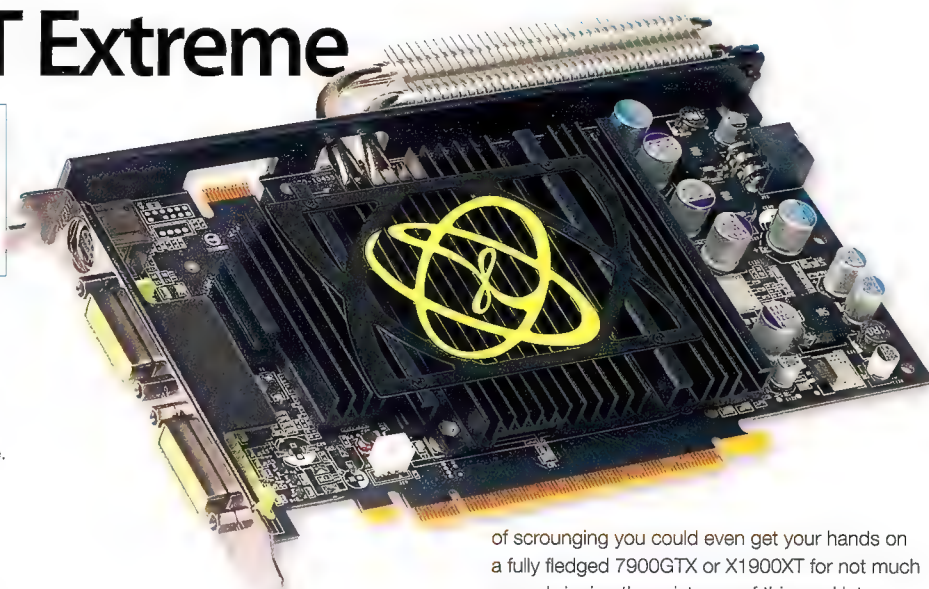
SPECS

Price \$610
Supplier Multimedia Technology
Website www.mmt.com.au
Specifications 570MHz core;
 1.46GHz memory; silent;
 2x DVI; DirectX 9.0;
 512MB DDR3.

XFX is never content to deliver a vanilla card, something we're thankful for, as it keeps things interesting. This beastie is meant to be a little faster than the older 7900GT, and packs in 512MB of RAM to push the point home.

Of course as an XFX there's a point of difference. For a start, a 20MHz core and 60MHz memory increase on default speeds has been happily packaged in. In reality this is dick-all (equating to about an almighty 3fps increase), but more performance, especially extra performance that is under warranty, is always welcome.

Secondly, the bugger is silent thanks to a great wad of heatsink thumped onto the top, fed voluminous calories of heat through a pair of meaty pipes. Quite a lot of heat too – even at idle you really don't want to touch the thing as it gets scaldingly hot. Fortunately it's well within tolerances as evidenced by the complete lack of graphic anomalies or artefacts during our benchtesting, proving that XFX knows its engineering stuff.



Using the Forceware 91.47 drivers at 1280x1024, 3DMark06 yielded 1715 for the SM2.0 test, 2008 for the SM3.0 test, 80.6fps for Quake 4 and 94.07fps for Half-Life 2. Edging up the res to 1600x1200 gave 1424, 1623, 64.3fps and 78.96fps respectively. Quite tasty.

The thing is though, the X1900XT 256MB edition still beats it, is cheaper (even when you factor in the XFX's street price) and this particular card is overclocked. Heck, with a bit

of scrounging you could even get your hands on a fully fledged 7900GTX or X1900XT for not much more, bringing the existence of this card into question once again.

There's an argument for the default 7950s as they compete rather well with the X1950 Pros, but we just can't see why you'd opt for this card with better options available to you.

CS

SCORE
7.5
 OUT OF 10

S12

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Scythe Infinity

SCYTHE INFINITY

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Supplier PC Case Gear
Website www.pccasegear.com.au
Specifications Fits Socket 478;
 775; K8; AM2; 960g; 10 heatpipes.

Scythe has a great reputation, but dear Lord we've just reached the point of freaky crazy. I mean, 960g? By the time the fan is thrown on, we'll have hit the fabled 1kg mark for HSFs. We can hear the poor old motherboard creaking under the stress as the furniture in the room is dragged towards the increased gravitational mass.

We'd like to say the Infinity is the spiritual successor to Scythe's wonderful Ninja, however since it has just released a revision B that fits AM2 we really can't. So let's just say it's a new cooler then, eh?

What it definitely is though, is a much more rigid and well built version of the Ninja, with five heatpipes that snake up from two of the sides, instead of three from all four sides. A new mounting system is also present, which requires you to slot in two preconfigured arms – giving us simply the easiest multi-socket mounting kit we've seen, and a big kudos to Scythe for that one.

A big 'shit no' is sadly also required, as it has used Intel's horrible 'push-down-and-twist'

unstable fastening mechanism for 775, which has resulted in many a system shut down due to insufficient contact with the processor. Boo!

Also new is the presence of Scythe's own 1200rpm fan – which although it isn't as quiet as our Nexus Real Silent, is still acceptable and a nice inclusion.

Doing our best Rodney McKay impression before destroying a galaxy, we turned Chernobyl (our custom heat generating tour de force) up to 80W and hooked in the Infinity. In an ambient temperature of 26°C it spat back a nice 42°C, which would be great, if its older sibling the Ninja didn't manage to do the exact same temperature at 300g less.

The Infinity is a good product – but simply way too heavy. Save your board a hernia and get a revision B Ninja instead.



SCORE **7.0**
OUT OF 10

CS

Noctua NH-U12

NOCTUA NH-U12

Price \$79
Supplier Nintek
Website www.nintek.com.au
Specifications Fits Socket 478;
 775; K8; 790g; 8 heatpipes.

We have a confession. We love monster heatsinks. Sure, the proposition of thumping on and bolting almost one kilogram of finned monstrosity to your board at first seems a little nerve-racking, but we've yet to see any real side effects from the more modern beasts.

Enter the Noctua NH-U12, as it is. To kick things off, a disclaimer – the NH-U12 has already been superseded. There is now a new revision available, the NH-U12F that comes with Noctua's own 1200rpm fan and an AM2 bracket.

The heatsink is held solidly in place by an excellent mounting system, requiring the usual multi-socket kit screwing, whether you be on the Intel or AMD side.

Two custom arms are screwed to the base, and then a custom backing plate is added to the motherboard. AMD readers need go no further. If you're in the Intel camp, you'll need two further extension arms to connect the

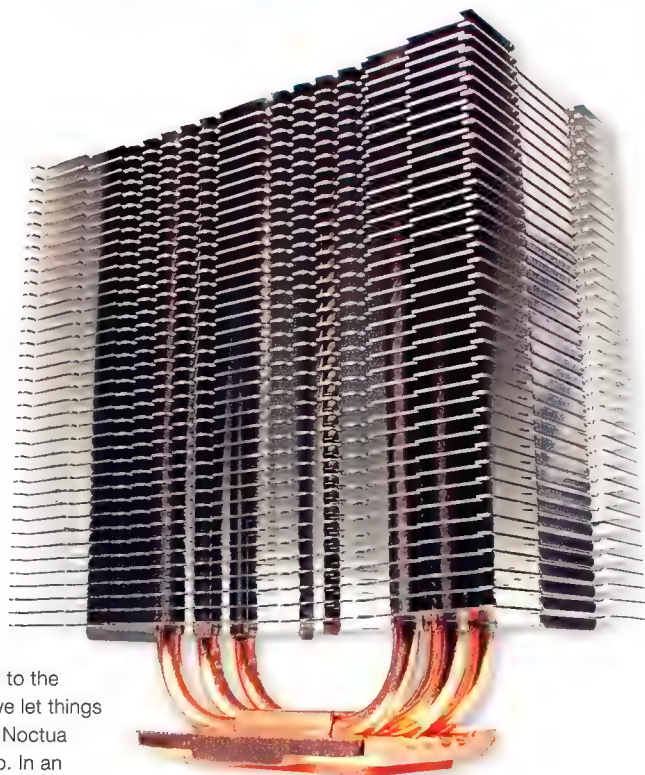
initial arms to the backing plate.

It's a hefty bugger weighing in at 790g; and potentially two 120mm fans could be mounted on it – unfortunately the retention clips included for these fans need to be longer, as Noctua has assumed there are attachment holes on the bottom of every 120mm fan – simply not the case. As a result, some creative clamping ensued with our single Nexus Real Silent 120mm fan.

Obviously this is a flaw that is overcome with the F variant due to the inclusion of the Noctua fan.

Setting the almighty Chernobyl to the predefined and long used 80W, we let things settle a little before strapping the Noctua down and seeing what it could do. In an ambient temperature of 26°C, it managed a decent 43°C – just a little above the original Scythe Ninja which managed a 42°C for reference. Not bad at all considering it's air cooled and extremely low noise.

Two thumbs up.



SCORE **8.5**
OUT OF 10

CS

Score:
093,130,810

Time:
53'13"25

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Ammo:



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ASUS PG191 Monitor

SPECS

Price **\$650**
 Supplier **ASUS**
 Website **www.asus.com.tw**
 Specifications **19"; 2ms G2G; 800:1 contrast ratio; built in 1.3MP webcam; 3x USB 2.0 ports; DVI; VGA; headphone/microphone jacks.**

We've not been too impressed by ASUS monitors in the past – while build quality has always been impeccable, it has consistently been behind the pack in terms of image quality. With the promise of a new 'gaming' monitor with built in subwoofer, our interest was significantly piqued enough to give it another chance.

Turning off the damn preset modes as usual and returning to a neutral colour temperature, we ran through our usual DisplayMate tests, the screen capable of showing a decent 2 black through 253 white, and unfortunately also some patchy uneven blocks in the gradients towards the darker end of the scale.

The vertical viewing angle at the default colour settings is high on abominable, with prevalent colour shifts within a five degree range. With

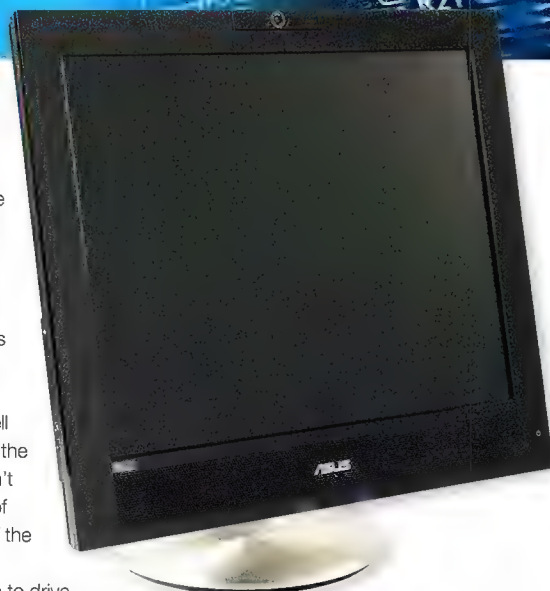


a directly perpendicular-to-vision setup, the whites turn red at the top and completely blow out at the bottom. Thankfully this can be mostly overcome by using a custom colour profile and completely ramping the brightness, proving once again that presets are not only for idiots, they're programmed by idiots.

The touch sensitive buttons respond well – too well in fact, as it's all too easy to turn the bastard thing off or access menus you don't want to when attempting to adjust the tilt of the panel, thanks to the poor placement of the touch sensitive buttons down the side.

On the sound side, it doesn't take much to drive the poor little speakers into clipping and crackling

as expected, but thanks to the built in subwoofer this is without doubt the single best built-in monitor speaker you'll hear once you've tweaked the equaliser settings manually. Yes, we said it's decent, and it's attached to a monitor. Of course it's not a patch on having a separate proper speaker set, or a decent set of headphones like the AudioTechnica ATH-A900s, but if you have to minimise clutter it's not too bad a solution.



Gaming was excellent, with Quake 4 revealing rich colours and the 2ms response time covered motion well.

The PG191 is quite a good attempt from ASUS, but there are better alternatives out there.

CS

SCORE
7.5
 OUT OF 10

Enermax Galaxy EGA1000EWL

SPECS

Price **\$459**
 Supplier **Actiontec**
 Website **www.actiontec.com.au**
 Specifications **1000W; 12V1@17A, 12V2@17A; 12V3@17A, 12V4@17A, 12V5@17A; 3.3V@30A, 5V@30A. Fans: 80mm front, 135mm top.**

Enermax is a well respected brand overseas, and not something we've seen terribly much of in Australia – and now we have one to play with. With rumours of the stupidly power hungry G80 and R600 proliferating like a pack of rambunctious randy rabbits, it seems there'll still be a need for stupidly over-specified power supplies for at least one more generation.

The Galaxy is a modular supply, with the first thing striking you being the incredibly high quality braiding enshrouding the cables – the main power cable feeling as strong and flexible as a freaking anaconda.

As is the way with the high end supplies, there is a four/eight pin split plug for the extra 12V, along with a fan cable for direct supply rather than going through a header on the motherboard. There are also three molex and three SATA connectors that can't be removed, in addition to the main power connector this

creates more clutter than is entirely required. In addition, the modular cables included are two more PCI-E, 12 SATA, 13 molex and two floppy.

To keep things organised, a wallet is included to store the modular cables. And you get a lanyard too, if you're particularly brand proud.

A fault indicator is on the back, as well as a buzzer should anything go awry considering most of the time you're not looking at the back of your case. If you find the buzzer annoying, it can be temporarily disabled by pressing a button on the back.

A huge 130mm fan sits at the top, and an 80mm at the front, both of which are incredibly quiet – considering how powerful this thing is, the silence is welcome. It's definitely quieter than the other KW supply on the market provided by PC Power and Cooling.

At idle the 12V, 5V and 3.3V rails pulled 12.37, 5.06 and 3.35 respectively, while under load this



didn't shift a damn bit – a surprising and entirely luscious result.

Wrapped in a serious black semi-gloss finish, the Galaxy is definitely welcome in any system that requires this much power.

CS

SCORE
9.0
 OUT OF 10

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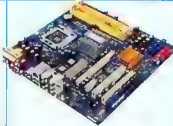
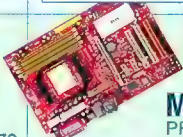
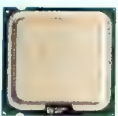
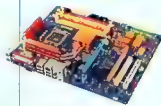
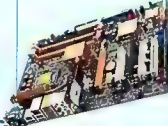
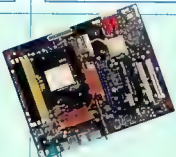
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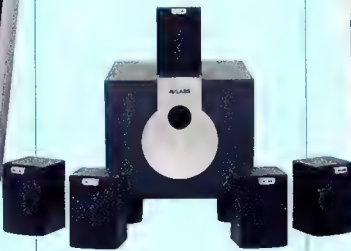
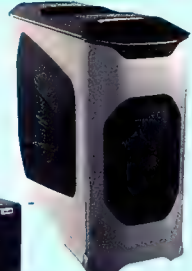
Our choice for
the best gear the
land has to offer

There's nothing sexier than new kit. And whether you need to horde your pennies (Budget), want the most power for your dollar (Performance) or own a small mansion and

a collection of sports cars (Extreme), we're here to help with this handy matrix of Atomic recommended products. You may find your needs fall between categories – that's okay,

just mix and match to suit your budget! Each piece of kit has been reviewed hands-on in Atomic, so if you want to learn more, look up the issue and page number listed.

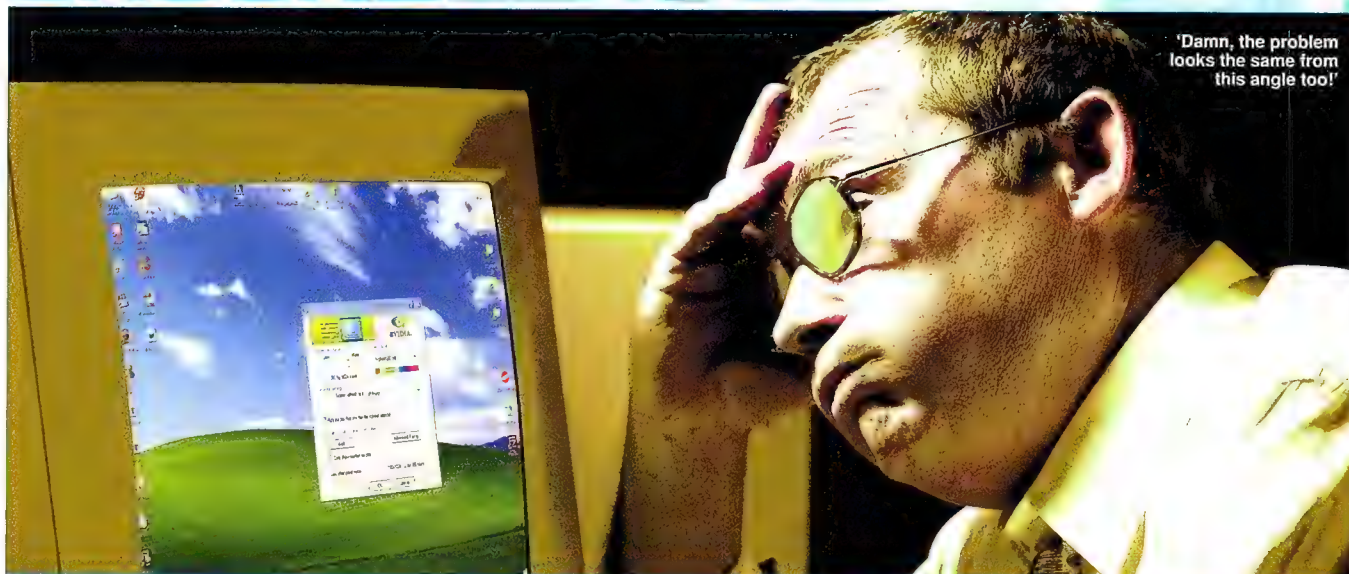
	CPU's	Motherboard	Memory	Video card
BUDGET <i>I can't afford to eat... gimme gear!</i>	intel  Intel Core 2 Duo PRICE \$300-\$870 Stretch a little further and buy yourself a Core 2 Duo – you'll be thanking yourself later. The E6300 is the cheap ticket to speed, at \$330.	 ASRock Conroe 945G-DVI PRICE \$140 ASRock's budget board may be using old technology, but it runs the new stuff just fine, and can even overclock a little. Reviewed in Issue 70 – Page 60	 Corsair Twin2X 1024MB 6400 Pro PRICE \$280 Corsair has a history of providing nice, stable and fiesty sticks of random access memory joy. These RAM sticks are EPP compliant, have low latency and are nicely overclockable. 800MHz of fun for everyone! Reviewed in Issue 69 – Page 51	 Sapphire X1800GTO PRICE \$340 The crazy amount of punch delivered by this card is worth stretching your budget a little. Viva la RADEON! Reviewed in Issue 66 – Page 33
	AMD  AMD Athlon 64 AM2 X2 PRICE \$258-\$670 Cheap CPUs are a wonderful thing, and the X2s are now wonderfully cheap. The 3600+ is your budget baby at about \$230.	 MSI K9N Neo PRICE \$140 Excellent performance from a budget board, with plenty of legacy slots for upgraders. Don't expect to overclock though. Reviewed in Issue 68 – Page 33		
PERFORMANCE <i>Hardware that bangs the best for buck.</i>	intel  Intel Core 2 Duo PRICE \$300-\$870 Core 2 Duo – crazy fast, crazy cool, crazy affordable, overclockable like buggery. The E6400 is the best buy, at about \$400.	 Gigabyte GA-965P-DQ6 PRICE \$445 You can get this board a lot cheaper with a brief search, so have a look for one of the tastiest Core 2 Duo boards around. Reviewed in Issue 70 – Page 54	 Corsair Twin2X 2048MB 6400 Pro PRICE \$520 Yes, these are the same sticks recommended for the Budget system. Sadly, they are also the only RAM sticks we've tested that are compatible with AM2 and Conroe. So until we get more in, the Corsairs will stay.	 Powercolor X1950 Pro PRICE \$360 The X1950 Pro is nothing short of fantastic. Mind you, this could just as easily be the 7950GT, so watch this space in case the NVIDIA card drops in price.
	AMD  AMD Athlon 64 AM2 X2 PRICE \$258-\$670 The X2 series are still fantastic chips, and in the face of the Intel threat are now going for cheap. The 4600+ is your current sweet spot at about \$400.	 Gigabyte GA-M56SLI-S5 PRICE \$320 Gigabyte delivers yet another affordable, feature-filled wonder of the 21st century. Reviewed in Issue 66 – Page 39		 X1950XT Crossfire PRICE \$670x2 If you can find a Crossfire Edition card, pair it up with a standard XT for maximum speed. Reviewed in Issue 71 – Page 58
EXTREME <i>Gimme power. Money is no object.</i>	intel  Intel Core 2 Duo X6800 PRICE \$1600 Core 2 Duo came and rocked our socks off like Chuck Berry doing the laundry. Yeah, it's that cool. Reviewed in Issue 68 – Page 45	 ASUS P5W DH Deluxe PRICE \$430 Stupidly over-featured and fast, if you've got the cash, then plonk it down here. Reviewed in Issue 69 – Page 50	 Corsair Twin2X 2048MB 6400 Pro PRICE \$520 Same story as the Budget and Performance systems. We just recommend more of it. Don't worry, we'll be opening up the selection in upcoming issues. Watch this space, or the one next to it.	 GeForce 7900GTX PRICE \$660x2 Until NVIDIA greatly improves the drivers for 7950GX2 SLI, the good ol' 7900GTX still rips. Reviewed in Issue 64 – Page 40
	AMD  AMD Athlon 64 FX-62 PRICE \$1400 Sadly gets beaten by a mid range Core 2 Duo, but still the top of AMD's pile. Reviewed in Issue 66 – Page 39	 ASUS M2N32 SLI Deluxe PRICE \$350 Perfection in a motherboard. Beautifully laid out and overclockable to boot. Reviewed in Issue 68 – Page 35		

Coolers	System drive	Display	Speakers	Cases
Arctic Cooling Freezer 64 Pro PRICE \$45 Super cheap, quiet and reasonable performance. Who could ask for more? Reviewed in Issue 66 – Page 46	 Samsung HD160JJ 160GB PRICE \$115 Super quiet and yet still fast, the 160GB Samsung offers excellent value for money. Reviewed in Issue 69 – Page 40	 Samsung 931C PRICE \$490 2ms of raging colour gamuts and beautifully smooth tonality that will make you weep with joy and hug strangers. Reviewed in Issue 70 – Page 56	 KOSS SB40 PRICE \$110 You'll find that these circumaural boomers will do you justice just fine if you can't afford a THX 7.1 platinum plated surround sound setup. Reviewed in Issue 38 – Page 30	 Cooler Master Ammo 533 PRICE \$105 Perfect for LANs with its heavy duty handle, military styling and rugged construction, the Ammo blasts the budget competition away. Reviewed in Issue 60 – Page 50
 Thermaltake Mini Typhoon PRICE \$70 It's big, but it'll keep your kit cool and look completely odd at the same time. Reviewed in Issue 70 – Page 58	 Seagate Barracuda 7200.10 320GB PRICE \$180 Seagate's fancy new technology makes this beast both fat and fast. We're almost at 1TB! Reviewed in Issue 69 – Page 40	 Samsung 244T PRICE \$1550 Brilliance at 24", the 244T offers 6ms gaming, a wonderful gamut and more inputs than an alien hooker. Reviewed in Issue 69 – Page 48	 AVLabs AVL325 PRICE \$210 While it can't hold a candle to the Z-5500D, with a price this low there's no excuse not to jump to 5.1. Reviewed in Issue 64 – Page 50	 Cooler Master Stacker 830 PRICE \$315 Like the Stacker before it, this sensational Stacker stacks sumptuous specifications salaciously. Reviewed in Issue 61 – Page 36
 Zalman CNPS9500 AM2 PRICE \$90 Radial fins are in, and the CNPS9500 radiates like a mutated nuclear holocaust squirrel. Reviewed in Issue 69 – Page 54	 Western Digital Raptor WD1500ADFD PRICE \$430x2 Dear lord. The performance king hath cometh, short of whacking in a SCSI. Buy two and RAID 'em. Reviewed in Issue 62 – Page 40	 Dell 3007 WFP PRICE \$2899 Thirty inches, 2560x1600, 11ms G2G. If you can handle the size and cost to run this massive beauty, you won't be disappointed. Reviewed in Issue 61 – Page 49	 Logitech Z-5500D PRICE \$520 Able to play the 'liquid gold' that is DTS 96kHz/24-bit, this 5.1 beast can wreck both home and hearing alike with equal impunity. Reviewed in Issue 48 – Page 56	 Lian-Li PC-S80 PRICE \$499 The PC-S80 must have been designed by an ear-muff wearing design dude as it not only looks sleek and cools well, but it's super quiet to boot. Reviewed in Issue 66 – Page 41
 Asetek Vapochill Lightspeed PRICE \$1160 Vapour phase change. Oooh. Vapour. Phase. Change. No matter how many times you say it, it's still cool (pun!) Reviewed in Issue 64 – Page 38	 Cool-Trek Vostok PRICE \$199 Until more extreme cooling systems come along that are AM2 compatible, this little kit will have to fill the gap. Make sure you get the updated mounting kit. Reviewed in Issue 68 – Page 41			

GROUND ZERO

Dan talks tech
as you've never
heard before

GROUND ZERO



Knowledge is weakness

Daniel Rutter hates oval wheels and Wicket-looking Chewbaccas.

Know nothing about technology and you keep running into totally opaque, utterly illogical problems that leave you feeling like a chimp trying to earn his P-plates?

Learn all the ins and outs, though, and you start to *notice* things.

Bad things. The other day, I changed my Windows desktop resolution and, of course, ended up with all of my icons in a pile. So I used Microsoft's Desktop Icon Layout doodad (search for layout.dll for more info) to put them back.

And my Recycle Bin disappeared.

Maybe it was under some other icon(s). Maybe it was completely gone. Who knows?

I used TweakUI to remove the Bin from the desktop, then replaced it, and bingo, there it was. No problem. It was the work of 10 seconds.

Just thinking about walking someone else through that procedure makes my head hurt. So, yeah, it's great to be able to fix stuff like that yourself. But when you know a lot of technical things, you start getting annoyed when you see things that aren't right. The obvious example is screen refresh rates, but the Curse of 60Hz is more and more a thing of the past now that LCD monitors are commonplace.

Take audio/video synchronisation, though. It drives me nuts when the soundtrack of a TV show or movie doesn't quite line up with the video. And it's common, too. It happens all the time in computer video files and with pay TV services of various kinds, and sometimes with free digital TV too, depending on the decoder.

Your average TV watcher just doesn't notice, though, unless the problem's really awful.

Another example? How about wrong aspect ratios? They're no problem for the ignorant. As I'm sure you all know, widescreen TV sets are no longer reserved for rich home theatre geeks.

I would find it hard to believe but for the fact that I've witnessed it myself, but lots of people don't seem to notice *gross* aspect ratio problems. They have a widescreen television, so they expect everything to fill the screen, and they cheerfully press the anamorphic-video-expand button when they're watching 4:3 television on their 16:9 set. Now all of the cars have oval

wheels and Chewbacca looks like Wicket, but *they just don't care*.

You can fix many of these problems, of course. All good PC media players let you jockey audio sync and aspect ratio around, and proper TV aspect ratio is usually only a button-press away.

If you have a satellite TV box with a 30 millisecond sync problem though, all you can do is try to get hold of a model without that glitch, or a firmware

update that fixes it. Or you can shell out for a home theatre amp that has configurable audio delay. If, of course, your audio is *in front of* the video, that won't help.

The list goes on:

Lousy de-interlacing that gives moving objects zig-zag edges.

Surround speaker systems with three out of six speakers connected out of phase.

Low – or, worse yet, *uneven* – frame rate video. My hat is off to anyone who can watch an action movie on SVCD without needing at least a stiff drink.

Some uneducated consumers notice stuff like this, and are once again left in the unfortunate position of being aware of a problem they have no idea how to fix.

But most just don't. If you don't understand what's going on under the surface, you tend

to assume that whatever's going on is the way it ought to be, and so you don't worry.

Does my technical knowledge let me get more pleasure out of a perfectly configured... whatever... than I would if I didn't have a clue?

Nope.

Clearly, I – and probably many of you – need to cultivate a mystic balance between knowing and needing, seeing and doing, being and thinking.

I think there's a FAQ about that somewhere.

Dan reckons that a little hair is a dangerous thing, so why take a risk?

dan@atomicmpc.com.au

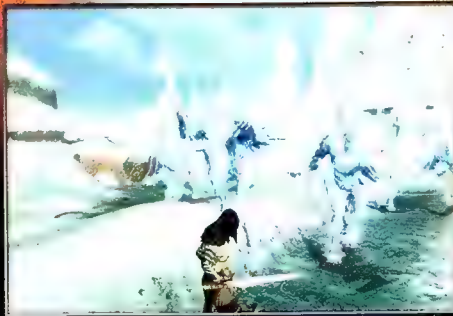


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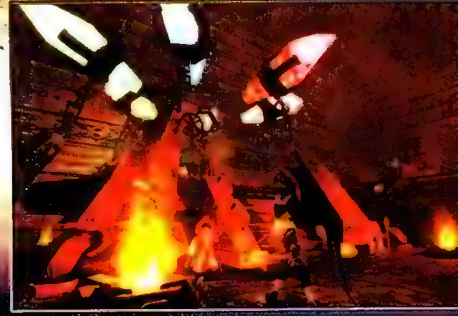
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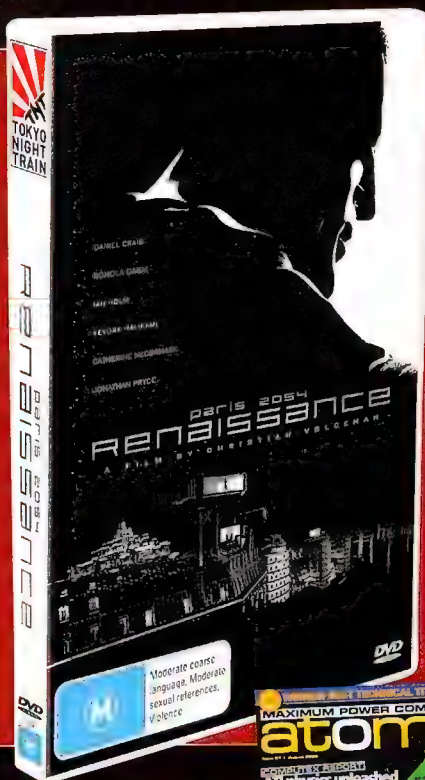
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10 Renaissance DVDs to give away

Oh yes, friends! If you're already subscribed to this wonderful magazine known as *Atomic* then you are, right now, in the running to win one of 10 copies of *Renaissance*, reviewed this issue on page 82. If you like sci-fi, the French, and devilishly cool and smart plots combined with state-of-the-art 3D artwork then this movie is for you. Thanks to the excellent team at Tokyo Night Train for this truly great prize.



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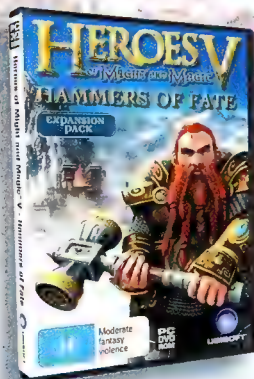
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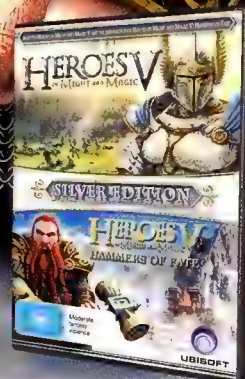
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this month



Engine Room

Logan Booker ventures out into the universe to talk to the man behind the space sim MMO Infinity.



Culture Shock

Renaissance is here, as is the *Entourage* and *The Departed*.



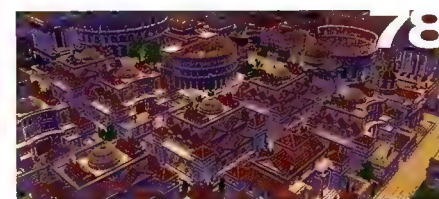
Geekette

Kate Inabinet desperately needs to get this rant off her chest.

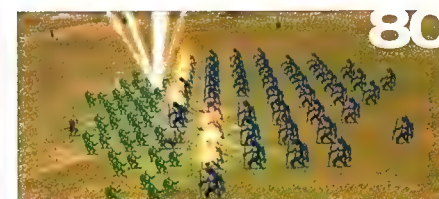
gameplay



Sam and Max



Caesar IV



Dominions 3

Christmas is almost upon us, crashing down like a drunken old man in a giant red and white sleigh. That is, if you believe in the man who drives the sleigh.

Even if you don't, it is still the season of giving, and receiving, and relishing the delight you feel as you swim through your giant building full of presents, much like Scrooge the duck does his gold. Except in real life, Scrooge would have knocked himself unconscious diving into all that solid metal, or at least, come out sporting a few black and blue marks on his beautiful white visage.

To celebrate the Christmas cheer, we have three top class games reviewed this month. First off the bat is the return of Sam and Max. It's episodic and about four hours long, but who can complain – it's Sam and Max! If you're familiar with their antics, or would like see what happened to that 'adventure genre' thing your older siblings keep whining about, page 76 is for you.

Caesar IV, another oldie, is back as well. There's been an absence of good city builders and C4 is set to change that. It truly is the king of the genre, and it's excellent to

see that developer Tilted Mill (made up of a bunch of ex-Impressions guys, the original team behind the game) has brought us a sequel we can be proud of. If you've been hankering for that city-building goodness, and old copies of SimCity and Zeus just aren't doing it for you any more, check out page 78.

Engine Room is a special one this month. We had a chat to Flavien Brebion, a very talented Frenchman who is out to make space sims the great genre they once were. He's been hard at work on a procedurally generated title, much like *Elite*, except it's massively multiplayer. Forget *EVE Online*, this is where all deep space explorers must apply. We're not kidding when we say Brebion is a coding magician, and you can read all about his programmatic exploits starting on page 72.

Finally, there's plenty of Culture Shock this month. There's the sci-fi flick *Renaissance*, and Chris Taylor ventured once more to the cinema to check out *The Departed*, because, well, we love our Leo – but not too much.

Win 1 of 5 copies of FEAR Extraction Point

FEAR was an excellent game. Better than excellent. We can't think of a word right now that has more punch than 'excellent', but whatever the word is, FEAR warrants it. If you too enjoyed the greatness of FEAR and can't think of an awesome enough word to describe it, you'll probably like the expansion, Extraction Point, just as much if not more. Thanks to Vivendi (www.vugames.com.au) we have five copies of the expansion to give away. To be in the running, just visit www.atomicmpc.com.au/competitions, click on the FEAR Extraction Point link and answer the question you find there!





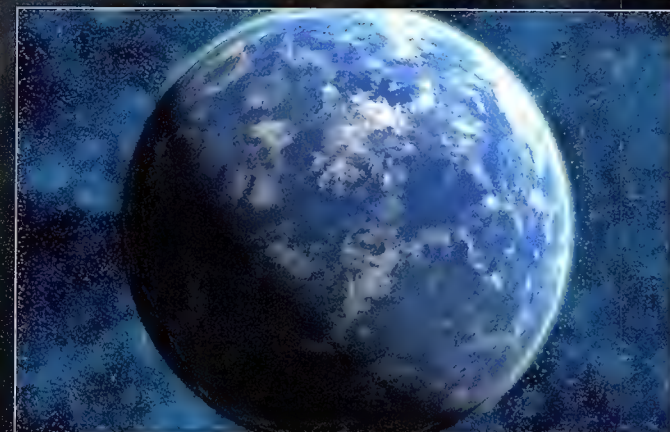
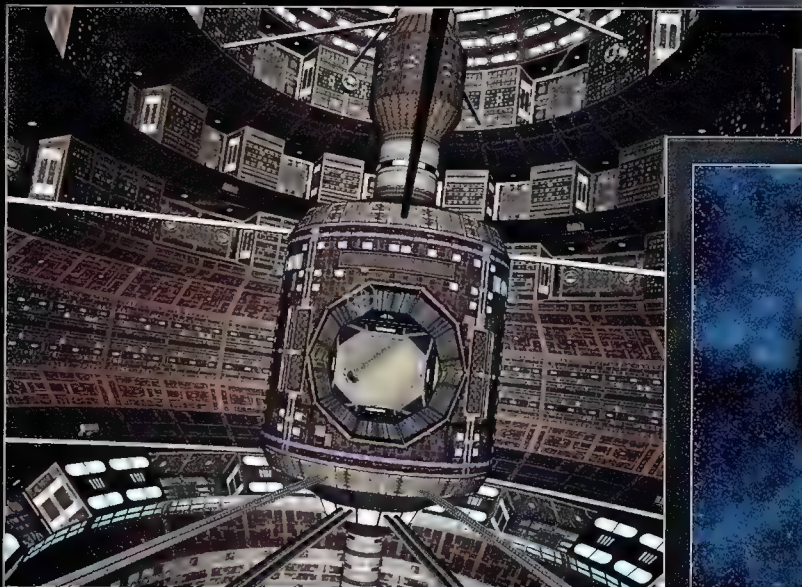
Infinity and beyond

Logan Booker jumps into the cockpit of his Cobra Mk3 and scoots off for a chat with Flavien Brebion, the man behind the space sim MMO Infinity.

Many pretenders have tried hard to usurp the space sim throne built by developers Ian Bell and David Braben with their genre-forging Elite. None have succeeded.

To this day, a game has yet to be made that truly captures the experience of the lone entrepreneur, free to roam an entire galaxy of unlimited opportunity.

Below Finally, a game to challenge Elite's supremacy.



Infinity, an independent massively-multiplayer game, under construction by just seven people, looks like it will finally succeed at resurrecting this idea and creating a game we can truly call Elite's better. Atomic managed to talk to Flavien Brebion, the title's lead developer.

Ace of space

28-year-old Brebion resides in Belgium and by day works at a nondescript company that makes virtual reality software. Keenly interested in coding from the age of 11, Brebion has taught himself BASIC, assembler, C and C++. Coupled with a five year degree in computer science and engineering from the University of Nantes in France, and you could say Brebion is a one-man coding machine. Like any good computer geek, he has a passion for games.

Except this geek has the ability to turn his passion into reality, one he could share with other gamers looking for an Elite replacement.

'I wanted to make more than a game – a complete living universe,' says Brebion. 'However my goal is not to compete with the blockbusters like World of Warcraft that have millions of subscribers. A moderate MMO, supporting a few thousand players at once, would already be an enormous success.'

Of course, as talented as Brebion is, such an undertaking would be back (and more than likely finger) breaking work. As such, the young Frenchman has enlisted the help of six others to help with modelling and content.

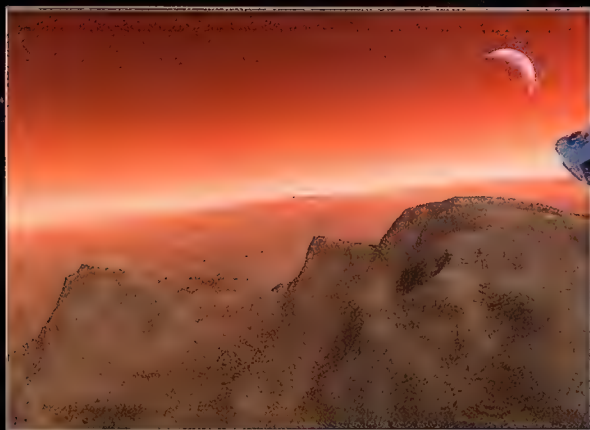
'In the past years I worked on many independent projects that mostly all failed due to various reasons, generally lack of organisation (managing a project over Internet is a challenge) or because they were over-ambitious for a young, inexperienced team,' says Brebion, who is eager to take the lessons learned from these past endeavours to help Infinity be the project that sees the light of day.

Work began in 2003, says Brebion, who started on building a 3D game engine that was capable of rendering whole planets that one could traverse from space, to atmosphere to finally, the surface without any loading screens or visual trickery. For Brebion, it's all about immersion.

'Once [the process of solving] the technical problems was well underway, I started to wonder what to do with this engine. Elite being one of my all-time favourite games, it didn't take long until I decided to make an Elite-like, sandbox space game,' he explains.

It's a mammoth task for one man and certainly at least a significant one for a team of people. It was then that the inventive programmer inside Brebion came to life.

'I also realised it was the perfect choice for an independent project, as the amount of content to produce would be greatly reduced thanks to procedural programming



for all the "natural" objects/planets, and the space-based setting for all the human objects/spaceships.'

By focusing on the necessities and leveraging his coding experience, Brebion realised that the game he wanted to create was very, very possible with the resources and time he had. He just had to be smart.

Engines of creation

And he was. Procedural coding neatly solved most of Brebion's problems relating to content generation.

Put simply, procedural coding allows Brebion to create content programmatically on-the-fly. There is no need – at least to start – to build whole planets or star systems by hand, or even textures. With a few rules and parameters in code, Brebion has a lot of creative power at his disposal.

These benefits are easier to understand with a practical example.

'Let's simply consider the textures for a single planet. At one metre per pixel, a planet like Earth would use 2000TB of memory/disk space. If we had enough processor power and bandwidth to generate a single 1024x1024 texture in one second (in my experience that's extremely optimistic), it would take 15 years to generate the whole Earth dataset. And do not forget that it's for a single planet: there will be billions of them in the whole universe of Infinity,' explains

“It'd take 15 years to generate the whole Earth dataset.”

Brebion. 'The universe is generated on-the-fly; there's no other solution.'

The magic at the centre of Brebion's implementation is Perlin noise. Perlin noise is 'coherent' in that there are no

discontinuities as you progress from one point to another.

Instead of producing a rough speckled image that looks like nothing in particular (perhaps just a blocky, very-obviously computer-generated star field), an image that uses Perlin noise will be smooth with definable features, even if random.

'Perlin noise is a very interesting function, because it has the property of looking

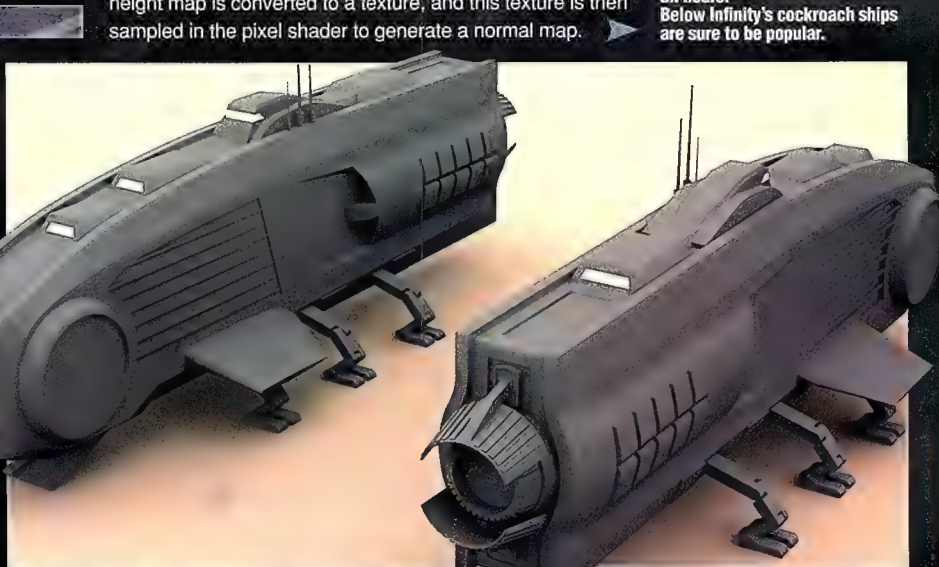
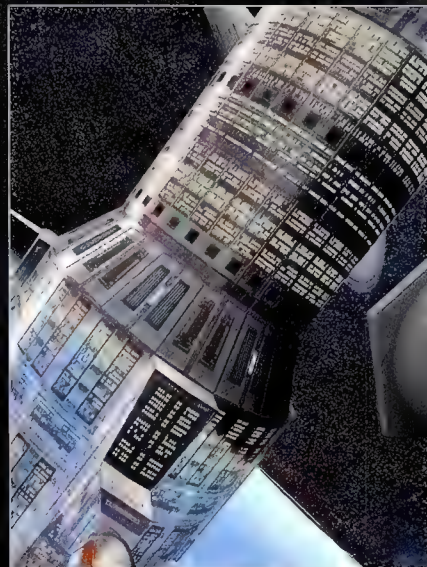
coherent at high frequencies but random at low ones.

By combining multiple octaves of Perlin noise, you can generate fractal textures, like clouds or terrain height maps. By changing some parameters, you can make those textures look different,' says Brebion.

Lucky for Brebion, this is exactly the sort of work pixel shaders in video cards are cut out for.

'It's all computed on the video card by a pixel shader. The height map is converted to a texture, and this texture is then sampled in the pixel shader to generate a normal map. ➤

Above left Red sky at night, shepherd's delight. Above There's a whole universe out there to roam and explore.



Below left Star City is open all hours. Below Infinity's cockroach ships are sure to be popular.



Above Watching the land take shape as you descend into the atmosphere of a planet will have you stunned.

The normal map and the height map are then used to look up a layers map (water, sand, grass, rock, snow, etc.), giving a weight for each layer per pixel. The colours of each layer are then blended together more or less depending on the weights,' he explains.

This may all sound extremely complex, but it wasn't the hardest part of the game engine to nut out. The big feature of Infinity, and what we'd say is the key element that will make the game stand apart from similar titles, is the ability to transition, completely seamlessly, from space to land.

'It's been technically the main challenge of the engine,' says Brebion. 'One of the main issues is data precision; in typical engines, the geometry and positions of the objects are stored in 32-bit floating point format and sent to the GPU "as is", and it's good enough because the levels are a few kilometres long at most. In a realistic planetary engine, if you do not take the limited accuracy into account, you get shaking vertices/objects when you zoom far out from the scene origin, or objects "sinking" into the ground.'

One simply has to watch the transitioning demo, available at the Infinity website (www.fl-tw.com) to see that the work Brebion has done in getting this just right has not been wasted. Watching the darkness of space lighten to blue as you descend into the atmosphere of a planet, the stars gradually disappear and the land take shape, complete with mountains and snow, is a sight that will have you stunned.

Below There is a whole universe of sunrises to witness.
Below right The ships are starting to roll off the production lines.



Into the void

Who knew how easy it would be to make a universe-sized space sim with beautiful effects? As long as you're a coding genius like Brebion, then it's very possible. One can't dismiss motivation and determination. Creating a game, like any large project or endeavour, is not something to be taken lightly.

'Procedural content doesn't solve all the problems. It should merely be seen as a tool that can be used in specific situations to help. It is basically trading artist time against programmer time,' says Brebion.

'Nobody likes empty and boring game worlds.

Unfortunately, this is bound to happen, especially in a game that features billions of star systems such as Infinity, but I'm still trying to bring as much variety as possible to the game.'

Currently Brebion is aiming to have an open beta available by the end of 2007. Extensive work has been done on all the technical parts of the game. The major tasks left involve those areas that demand content creation by hand.

'We've got more than 25 ships modelled so far (plus a few stations, turrets, buildings), and more are coming. The development team hasn't grown much though... as I feel that adding more people would make the project harder to organise or cause communication problems, especially as it's Internet-based,' says Brebion.

'Tens of people are contributing to the game daily, and this project would be nothing without them.'

If you'd like to try the game out, Brebion has released a 'combat prototype' that has allowed players to try out the flight physics and battle mechanics. It is available as a download from www.fl-tw.com.

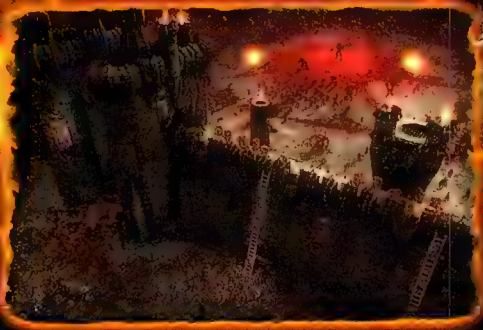


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Sam and Max: Culture Shock

How do you rid the world of former child actors, using only a gun, some cheese, and an inkblot test? David Kidd finds out.

The graphic adventure was a uniquely PC genre. Right up to the mid-'90s, we pointed, clicked, swore, laughed, and puzzled our way through Full Throttle, The Secret of Monkey Island, King's Quest, Leisure Suit Larry and Maniac Mansion. But then this cinematic, story-based genre found no place on the PC during its multimedia gaming renaissance. These great characters, zany stories, and mind-bending puzzles made way for first-person shooters, real time strategy, and a wave of puzzlers like Myst.

Recent stabs at the genre, like Quantic Dream's Fahrenheit or Funcom's Dreamfall, have sacrificed the humour and colour, in favour of basing their design on phrases like 'dramatic experience' and 'emotional connection'. For those after the classic LucasArts or Sierra On-Line gameplay, the only recourse has been an army of amateurs equipped with Adventure Game Studio (see *Staying Alive*).

Now, Telltale Games is restoring the balance by bringing back one of the hallmarks of the genre. In 1992, Sam and Max Hit the Road embodied the



fun, light-hearted style of adventure games, and was truly funny. The humour is in part due its comic book pedigree, with the cartoon-styled Freelance Police, consisting of Sam (think Philip Marlowe, as a talking dog, wearing a suit) and Max (a slightly unhinged and physically dangerous rabbit), trying to solve offbeat cases using whatever violent methods necessary. It took nine years, a couple of comic books, and an animated TV show, before LucasArts thought it was the time to put out another Sam and Max game. And then it was canned.

But all is not lost. Telltale Games, which already produces a 3D, episodic adventure series, Bone, picked up the rights to Sam and Max. Now, along with a bunch of former LucasArts employees and Sam and Max creator, Steve Purcell, Telltale Games will produce a six-episode season.

Eight hundred and ninety-five cents of fun

There's not much that can be said about Sam and Max: Culture Shock without giving away the plot.

Staying Alive

Chris Jones's Adventure Game Studio (www.adventuregamestudio.co.uk) has helped create a new wave of adventure games. This free IDE lets you script adventures, import backgrounds, record dialog, and ultimately create your own adventure game in the classic Sierra On-Line or LucasArts style. It's so powerful that it's even been used to recreate enhanced versions of classic adventures, like Maniac Mansion or King's Quest.

Most AGS games are amateur, but they rival their commercial inspirations. Dave Gilbert's The Shovah (www.davegil.com) is one example, involving excellent voice acting, a DVD-like commentary, and great puzzles. Ben Croshaw's 5 Days a Stranger, 7 Days a Skeptic and Trilby's Notes (www.fullyramblomatic.com), are also great examples of what someone with a bunch of spare time and an excellent development tool can do.



ScummVM

Ah, ScummVM. This is the type of thing that warms the cockles. It's an open source virtual machine that'll run a number of old adventure games, on a number of platforms, provided you have the original data files. It's not just for alternative operating systems though, as ScummVM will let you run old DOS games on Windows without a hitch. So far, ScummVM supports most LucasArts adventures, as well as a number of other games like Simon the Sorcerer and Broken Sword. And to really sweeten the deal, it'll not only run the excellent Beneath a Steel Sky, but the full CD-enhanced version is available for download from the site. Get it at www.scummvm.org.

Kaptain Brawe

Naphtalite's upcoming Kaptain Brawe harks back to traditional 2D point-and-click adventure games, featuring crisper graphics and an intuitive interface. Think Futurama's Zapp Brannigan crossed with Space Quest's Roger Wilco, and you're pretty close. Grab the demo from www.naphtalite.com, where you'll also find some neat tutorials from the artists and developers.



We can, however, say that it's classic Sam and Max adventuring, with the duo bringing down a terrorist group of former child actors. It's a ridiculous story, told through wonderful graphics, and the best voice acting you'll get in a game. Puzzles can make or break an adventure game, but there are enough clues and hints to make each solution strangely logical, albeit violent. The unique puzzles are neatly woven into the story – even the dodgy car chase sequence is really just a puzzle wrapped up in an arcade game.

Furthermore, although the relatively few rooms are recycled throughout the course of the story, they're reused in creative ways. The office is revisited numerous times, making it the prologue puzzle, a psychotherapeutic dream sequence, and a metaphysical representation of Sam's mind.

From a design perspective, it's a departure from both traditional and recent adventure games. Firstly, while it's 3D, it's still an old-school 2D point-and-click adventure. The 3D engine delivers more interesting cut scenes and animations than a straight up 2D would, and the seamless scrolling and close-up dialogue transitions give you the

feeling you're playing a Saturday morning cartoon.

Also enhancing the cartoon feel is the episodic release cycle. Each episode, purchased through Telltale Games' site (after an exclusive 15-day release on the US-only GameTap service – boo!) will cost US\$8.95, and depending on how quickly you belt through the puzzles, will give roughly two to four hours of gaming. Also, rather than being a small part of a larger story-arc, each episode is self-contained, again similar to a cartoon series.

We haven't given much kudos to the episodic gaming movement, with Half-Life 2 and Sin: Episodes both falling well shy of giving us an appropriate bang for our US\$20. But Culture Shock is so clever, and so smartly priced, that it's well worth the download.

If bite-sized Sam and Max isn't your thing, you can wait until all

six episodes are complete and then put down US\$34.95 for the whole season – that's even more worthwhile, as each episode comes to about six bucks. Ultimately, there's so much to like about Culture Shock and the only downside is that you'll have to wait a month until the next one. But, like the cost, that's a small price to pay.

You feel like you're playing a Saturday morning cartoon.



Developer Telltale Games
Publisher Telltale Games
Website www.telltalegames.com

Recommended
1GHz CPU; 512MB RAM; DirectX 9 video card

VERDICT

Creative cartoon violence; free psychotherapy.



Silly car chase scene; is that the end already?



9.0
OUT OF 10

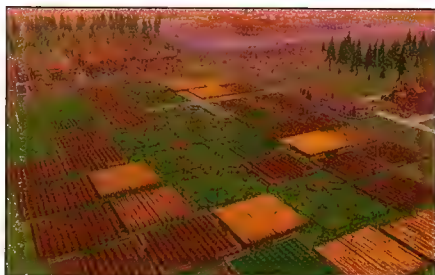
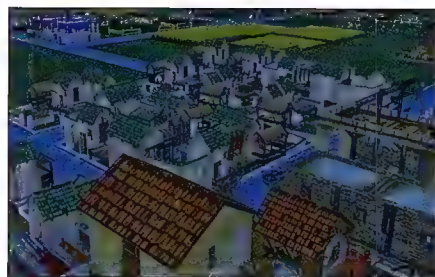


Caesar IV continues with the Roman-based theme established by its predecessors. The goal, contrary to most games, is not to destroy, shoot or pillage anything but to simply construct a functioning city with industry and agriculture, and infrastructure including law, hygiene, education and entertainment.

Except it's not so simple, and only with hard practice and good planning skills will a city develop from basic subsistence into a sprawling metropolis. City builders traditionally feature an isometric view in-game, with an interface providing access to building options as well as extended support in the form of city reports and advisors, tax, trade and

labour controls. Veterans will be both happy and sad to learn that Tilted Mill has neither improved nor ruined this in C4.

Based on Empire Earth's Titan game engine from now-defunct Stainless Steel Studios, C4 is completely 3D and allows zooming, camera rotation and – new to the series – building rotation. Support for Shader Model 2.0 is also present, finally providing your golden plazas with shiny bloom and specular lighting and normal mapping for brick and marble. A lack of engine optimisation however penalises all but the godliest of systems from running with all effects enabled, and even on the reviewer's Athlon 64 X2, 2GB RAM and GeForce 7950GX2



equipped PC, frame rates were dire with shadows on. The model complexity on citizens is also extremely basic, but considering the heavy gameplay focus (and the fact you'll spend most of the game zoomed as far out as possible), it's hardly noteworthy.

What is noteworthy is the replacement of the 'push' economy model with a 'pull' system – a first for the series. Introduced in Immortal Cities: Children of the Nile (also developed by Tilted Mill/Impressions), markets will no longer send out sellers to distribute goods. Instead, citizens will leave their homes to buy what they need, which makes more sense than the old model. The benefit is that city building is more organic and the old trick of building long roads with minimal corners to prevent sellers from 'wandering' is no longer mandatory.

Caesar IV also now provides players with the ability to place pleb, equite and patrician housing, so they no longer have to live in fear of their workforce disappearing overnight as housing evolves. Plebs will always be plebs, providing the backbone of your labour, while



Tweaks for Governors

Caesar IV is quite the resource hog, despite what you'd expect to be a game with simple system demands. The biggest frame rate killers are shadows, the day/night cycle and water reflection/animation. If you find your PC is screaming sweet, sweet mercy, try turning off shadows and if that's not enough, water effects and then the day/night cycle.

If you find fires breaking out across your city and your system slows to a crawl, the best thing to do – paradoxically – is not to reduce particle effects, but antialiasing.

If you can't live without shadows, you can edit the NewConstants.txt file in the Data directory of the Caesar game folder to improve shadow performance, at the expense of edge complexity. Scroll down the file until you find:

```
Shadow/MapSize/X;int;2048
```

```
Shadow/MapSize/Y;int;2048
```

Replace both '2048' values with '1024' for a high end system, or '512' for a low end system. You should see a noticeable boost in performance when shadows are on (they'll still kill your system when things get busy though).

Finally, the trade route bug: On some systems and certain scenarios, opening the Empire map and opening a trade route will crash your system.

A workaround is available and involves opening the NewConstants.txt file and changing the '1' in the following line to a '0':

```
EmpireLevel/TradeRoutePolys;bool;1
```

Note that making changes to the NewConstants.txt file will label you a 'cheater' on the winning screens and prevent you from playing online.

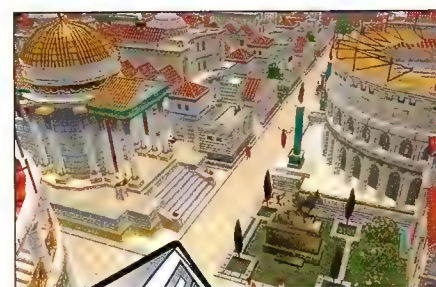
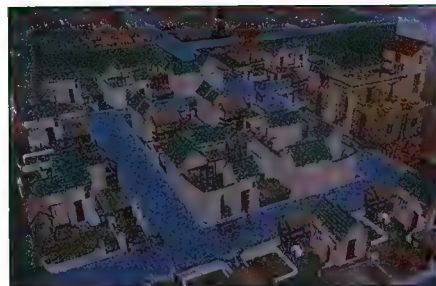
equites handle the educated duties of teaching, medicine and acting. Patricians do nothing, except pay extravagant taxes, and in most of the game's scenarios (either in one of the three singleplayer campaigns, or online) all your building is focused around supplying – eventually – a flourishing city for your mansion-dwelling population. When fully evolved, taxes from patricians will easily outstrip other sources of income.

The game is not entirely without its violent elements. C4 supports a very basic military aspect, even more elementary than previous games. While you can't attack other cities, you can build cohorts to defend your own and send legions off to fight for the Empire. Most of the campaigns allow you to choose between economic or military scenarios as you progress, but thanks to the absurd unit controls, military

missions are more frustrating than anything.

One final gripe is with building itself. For a game with such a heavy focus on perfectionism, the lack of a layout grid or other way to align buildings before you place them is close to debilitating until you learn to 'guess' with your eye. In this age of gaming, the lack of such a basic feature seems ridiculous, especially with the 3D perspective making placement all the trickier. Thankfully this is offset by the inclusion of an undo button that – most of the time – will back track your last change.

Caesar IV is easily the pinnacle of the city building genre, with a rich blend of all the features we've come to expect from a game of its pedigree. But the absence of some polish and the lack of a few features keep the game from total brilliance.



Developer Tilted Mill
Publisher Vivendi
Website www.caesariv.com

Recommended
2.8GHz CPU; 1GB RAM;
256MB DX9 card.

VERDICT

Gorgeous engine for the genre; 'push system'; 100 hours of gaming. 

Surprisingly resource hungry; fiddly interface; poor military control; lack of layout grid. 

SCORE

8.5
OUT OF 10

Sadly there's no spell to increase how long your units can hold their breathe.



Dominions 3: The Awakening

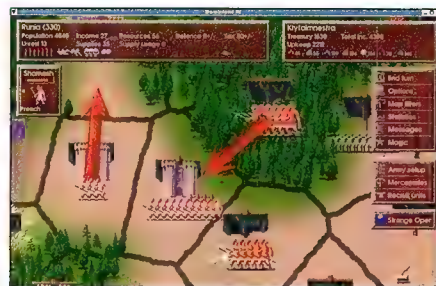
David Kidd pretends to be a god

Dominions 3 is to 4X strategy as Magic: The Gathering is to card games. On the surface, it appears to be a run of the mill turn-based fantasy game, where you invest in your province, research spells and build up your army, but if you peek under the skin, you'll find one of the richest strategy games ever devised, thanks to its diversity and wild flexibility in gameplay. That's a big assertion, so bear with us.

Dominions 3 doesn't have a plot in the traditional sense; there's no campaign to step your way through, nor is it based on any historical or existing fictional analogue. Instead, the story of Dominions 3 is told through the carefully crafted nations, which are divided up into early, middle

and late Ages. The premise for every game is the ascension of the one true god, as each nation pits its respective pretenders against each other, using spells, armies, and subversion.

Before you get into battle, however, you'll spend a great deal of time just customising your nation and building your pretender god. You'll decide on a pre-made scenario or randomly generated map, then the Age you want to play, then you'll decide your nation. That's not as easy as it sounds, as there are 50 nations spread across the Ages, where each nation has differing benefits and armies. After you've chosen your nation, you also get a chance to customise it, where you can invest points into various scales



for benefits, or get points back by intentionally handicapping yourself. And finally, there's the pretender god. Your pretender could be an immobile fountain of blood that sits in your capital city casting spells, or it could be terrifying dragon that you take out into the battlefield to slaughter entire armies on its own.

Once you're in, it's standard 4X strategy. You can zip around the 2D map, recruit armies, research spells and expand your dominion. In contrast to other turn-based strategy games like Civilizations IV, empire management is relatively simple, where you have a global accumulating income to spend on structures, defence and expensive units; and each province has its own generic non-accumulating resource value, which is used mainly for recruiting armies.

The other half of the game takes place on the battle map, but as each battle is resolved during the turn, the battles are passive replays rather than a tactical screen. To improve your chances of success, you must give units and

YOU'VE SENT 10,000 MEN TO THE HOLY LAND TO WAGE A CRUSADE...



commanders a formation and basic attack or spell casting orders before the battle, and then leave the rest up to the AI. During the battle movie, you can zip around, looking at the effects of each spell, and glean vital information to make some tweaks before your next battle.

The magic of Dominions is not in the battle tactics or the high strategy. Rather, it's the complex interactions between the units, magic and pretenders that let you create any type of army you'd like. If you want, you can create a traditional army with foot soldiers in the front, archers behind, and cavalry screaming up the flanks. Or, you could drop some stealthy battle mages and some elite troops to strike provinces behind enemy lines. In fact, you could do away with armies altogether and equip your pretender god with spells and magical weapons to make it nigh invulnerable in battle. With 600 spells and 1500 units, you can create any fantasy army you can think of, and it's this element that makes Dominions 3 a winner.

This is so close to a 10/10 game, but there are some unnecessarily poor design decisions that stop it short of perfection. The first is the interface which, while more streamlined than Dominions 2, doesn't present you with as much information as you'd like. Secondly, the game setup is atrociously clunky, forcing you to jump in and out of screens repeatedly when you could have simply had the screens combined into a single nation generator page. And finally, while we're conflicted about saying this, the incredible manual doesn't go far enough to explain the differences between each army – you'll have to go online to get a unit list, and even then, it's not an official one. These are fairly minor issues, though, and are only apparent in the first few weeks of playing. After that point, you're used to the interface and you're familiar with each nation and army breakdown.

In the end, this is a big, complex beast of a game. It's a game you have to 'get', but when you do, you'll be a convert forever. You'll explore

each nation, each magic path, and eventually find some killer combination that dominates the map. And then you'll put it aside and start all over again. And once it grabs you, you'll find other games of its type shallow and simple. For an independent game, the US\$55 might seem steep, but once you start playing, you'll get months, or even years, of game time, which makes it a true bargain. This is what strategy games are all about.



Developer Illwinter Game Design
Publisher Shrapnel Games
Website www.shrapnelgames.com

Recommended 1GHz CPU; 512MB RAM;
Windows, Mac OS X 10.1, Linux (Libc
2.1.92, OpenGL); GeForce or higher.

VERDICT

Vastly flexible gameplay;
modability; manual.



No unit list in manual; simple
tactical options.



SCORE

9.0
OUT OF 10



CULTURESHOCK

Everything you need to know about geek film, music and literature.



Black and white: does it represent the battle between good and evil? Or did the creators just think it looked cool?

Renaissance

DVD

Starring David Craig, Ian Holm, Jonathan Pryce
Director Christian Volckman Distributor Tokyo Night Film
Website www.renaissance-movie.com

Before you cut loose on your poor television with all manner of blunt instruments, this movie is supposed to be in black and white. Does it represent the dichotomy of the characters, the battle between good and evil, or did the creators simply think it looked cool? Expect to ask questions just like this one as you venture through Christian Volckman's mock world of 2054 Paris, France that while impressive, sometimes feels a little overcooked.

When Ilona Tasuiev, a brilliant scientist working for pharmaceutical giant Avalon, is mysteriously kidnapped, her sister Bislane seeks the aid of the police. Assigned to her case is Barthélemy Karas, a vigilante cop with more balls than a Spalding sports factory. When Ilona's close friend is found hanged in his bar, and men who appear almost invisible start chasing Barthélemy and Bislane, it becomes clear that Ilona's kidnapping is more than a simple crime.

Volckman's world of the future is subtly different to our own; the touches of sci-fi in *Renaissance* bring a slick, if darker aura to locations like the Eiffel Tower and the Louvre. And while indeed the film is as slick as slick can get, with cutting edge 3D animation and an atmosphere described by critics as

melding 1984, *Bladerunner* and *Sin City*, the movie simply comes over as a more articulate and better executed version of Square's *Spirits Within*. Like Square's effort, the characters, although dual-toned, are still life-like enough to be almost real. Almost.

Sadly, when asked to do something more taxing than just stand still, the 3D animation is not natural enough to convince and it's hard not to compare the

movie's characters to a possessed coterie of black and white mannequins.

The story itself proceeds well, but only picks up coherency about one-third of the way in. Many of the characters are introduced unceremoniously and we couldn't help but feel a little lost until the film imposed a plot on its meandering. Without spoiling too much, the end of the movie is also a tad unbelievable, thanks to a strange twist of character development that didn't seem justified.

You can look past a lot of this though, thanks to the care taken with the visual detail and direction. It doesn't get more obviously noir than this and while some scenes drag with self-importance, *Renaissance* is still an enjoyable work.

LB

The film comes across as a more articulate version of *Spirits Within*.

score **7.5** OUT OF 10



...AND YOU'RE TRYING TO
MARRY YOUR YOUNG PRINCESS
TO YOUR AGEING ENEMY.



The Departed

CINEMA

Starring Jack Nicholson, Leonardo DiCaprio, Matt Damon
 Director: Martin Scorsese Distributor: Roadshow Films
 Website: thedeported.warnerbros.com

To be honest, we didn't expect much from *The Departed*. The trailer wasn't impressive and we're cynical about films marketed with the names of the actors taking precedence over everything else. After we walked out of the cinema, we brutally punished ourselves for doubting Scorsese.

There are two cops - Billy (Leonardo DiCaprio) and Colin (Matt Damon). Billy's from a criminal family but he's willing to do anything to succeed - an attitude that sees him going undercover as a cohort of Frank Costello (Jack Nicholson), an eccentric mob boss who has the morals of a crack-addicted alley cat. Colin on the other hand has a family tree that's sparkling clean, but was mentored by Frank and now keeps him informed of police activities.

The two young cops face off in a battle that's sure to get nasty. The film is a meaty two-and-a-half hours long, but it never drags. Early on there are a lot of dark jokes but these fade away as the showdown approaches. The writing is gold, the dialogue often poetic and occasionally profound - but don't take your grandma to see this. The characters have vocabularies that'd make stevedores blush and Irvine Welsh block his ears. It's also shockingly brutal.

The entire cast is in fine form. Nicholson is completely and utterly flawless. Even Damon and DiCaprio - two actors people love to hate - are impressive. It's a big ask to find a single fault here, really. Sure, there are a couple of niggles - but this is probably the best movie of the year, so go see it. **CT**

score **9.5**
OUT OF 10



Entourage Season One and Two

DVD

Starring Jeremy Piven, Adrian Grenier
 Director: Various Distributor: Warner Bros.
 Website: www.hbo.com/entourage

This is the kind of series we love. It's slick, smart, funny and a lot of fun.

It's a drama slash comedy. The first season has eight episodes and the second season has 14 - each roughly 25 minutes long. The story centres on one Vincent Chase (Adrian Grenier), a young actor who could very well be the next Johnny Depp if he wasn't so full of himself, and his entourage of friends and assorted randoms, who are all out to make a quick buck from his success. Neat fact - the whole thing is based loosely on the career of Mark Wahlberg.

It features a lot of ludicrously wealthy men attempting to bed ludicrous numbers of ludicrously beautiful women, but it's never clichéd in the 'oh ferchrisakes' sense. Like a lot of HBO products, this series manages to consistently hit all the right notes with its plot development, character dynamics, dramatic timing, casting and music selection.

Unlike a lot of comedy shows, it has a genuinely good storyline. The jokes are usually subtle - it never feels like the writers are jumping up and down, shouting, 'Hey, we just made a funny!' It isn't trying to be a laugh-a-minute show. The jokes are all grounded and in context.

You can't afford to miss this series. It's just so good on every level - from Grenier's willingness to act like a completely self-obsessed dickhead to all the amusing little cameos by real actors, producers and directors. **CT**

score **9.5**
OUT OF 10





YOUR CAVALRY IS FENDING OFF SKIRMISHES IN THE SOUTH.



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AND YOU NEED TO STRENGTHEN YOUR DEFENCES TO PROTECT YOUR



Moderate
battle violence

PC DVD
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Actual in-game screenshots.



NOVEMBER 16th

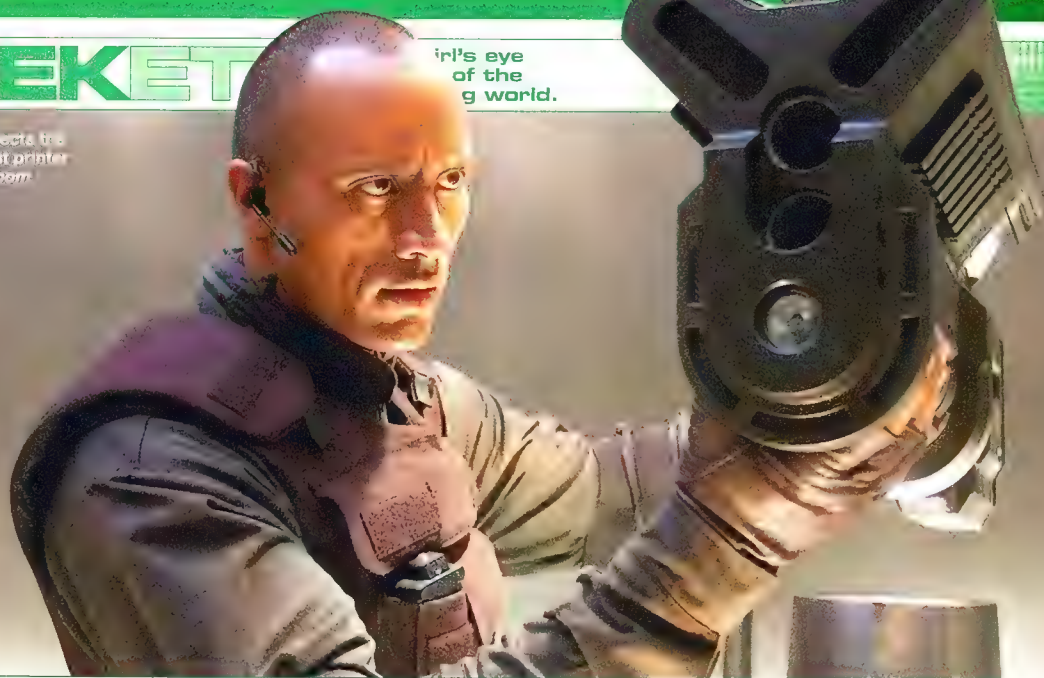


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Acting... on!

Kate Inabinet wants to live in a world where movies and games co-exist in harmony.

Perusing the movie guide for want of something to do on a lazy afternoon, anyone would think that they had picked up a games catalogue by mistake. What started out as a trickle of video game to film adaptations in the eighties and nineties has turned into a veritable flood in the naughties – *Silent Hill*, *Doom*, *Resident Evil*, *Bloodrayne*, *Alone in the Dark*... to name just a few recent forays.

One could be forgiven for assuming that because the games themselves were so phenomenally successful, the movies by right would enjoy the same popularity. Unfortunately this couldn't be further from the truth. It appears that almost unanimously, film adaptations of games evoke the same reaction associated with the discovery of a pollywaffle in a swimming pool – that they're crap.

Games don't make a lot of sense, and don't need to in order to be entertaining. They are based on gameplay mechanics, shooting at or avoiding objects and negotiating puzzles. The characters come second to the gameplay, and dialogue squeaks in at third place. Sometimes the game has a back story, but it can be considered superfluous when anyone as impatient as myself can tap through the opening sequence and subsequent cut-scenes yet still manage to complete the game without issue.

Considering that films are made in precisely the opposite manner, adapting a movie from a game would be quite the daunting task.

Casting for these films brings its own special hell. Finding actors that look like the game characters is an attractive option, but as *Street Fighter* so thoroughly proved, it is not always the best. A human doppelganger may please fans of the game momentarily, but they can't be guaranteed to demonstrate any more acting skill than a four-pixel sprite. Cutting corners is not going to help matters either. While casting *Bloodrayne*, notorious German director Uwe Boll chose 'getting naked' over 'acting talent' and thus hired prostitutes instead of actors to err... flesh out a couple of scenes, and was duly slaughtered by movie critics.

Sometimes, because of physical restrictions, the only option for a character is computer generation. Although CG might seem like the answer, anyone who has had the misfortune to see *Hulk* can attest that bad computer

graphics have the ability to thoroughly destroy an otherwise good film. Not all graphics are dismal, in fact, some are glorious, but that still doesn't mean they are the best solution. *Final Fantasy: The Spirits Within* was an example of when good graphics go wrong. The characters were so lifelike in appearance that they may as well have been played by real people. Instead, what could have been a great film, ended up being a painfully long and incredibly

expensive shampoo commercial with the entire cast apparent graduates of the Keanu Reeves School of Wooden Acting.

No matter how bad the reviews are for the movie adaptations of games, I still get a guilty pleasure from watching them. Perhaps it is the gamer in me. Fans will generally forgive bad acting, questionable production and dubious CG effects, so long as the film remains true to the game. Non-gamers will forgive creative liberties with storyline and characters, as long as the film is a well-acted, slick production. To me, it is the quirky discrepancies and surreal casting that appeal to my warped sense of humour. I loved the *Resident Evils* even though the main character isn't even in the games. I honestly believed that The Rock could smell what those aliens were cooking in *Doom*, and I thought Angelina Jolie did a stellar job of portraying the sexy,

smart-mouthed adrenalin junkie Lara Croft in *Tomb Raider*, considering that she is nothing like that in real life. Oh... wait.

I am yet to see *DOA: Dead or Alive*, but I am worried that it is just going to be a battle of bouncing silicon instead of the delicate interplay of personal relationships that *DOA: Volleyball* was. To create a successful adaptation of this game, it will require an intense amount of research into each character's whims and fancies, and the artistic interpretation of Splashy Splashy is not to be taken lightly.

We're still wondering why studio execs chose Angelina over Kate for the role of Lara Croft.
geekette@atomicmpc.com.au



“*Final Fantasy* ended up being a painfully long and incredibly expensive shampoo advert.”

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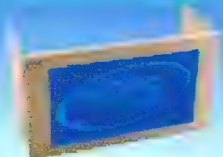
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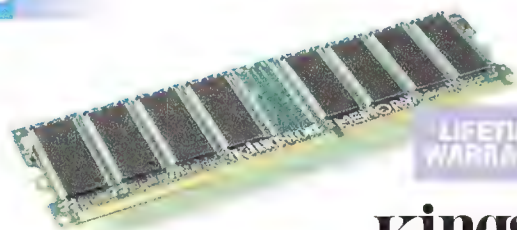
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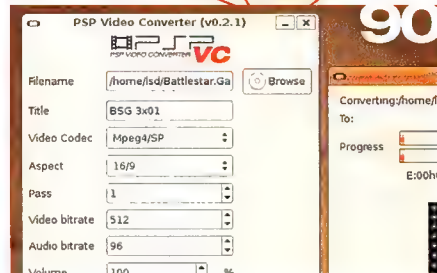
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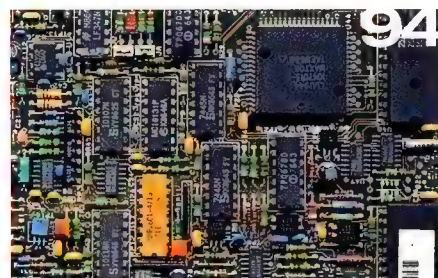
▲ Encoding with Linux

Leigh Dyer rips DVDs easier than he rips his pants off during a ManPower Australia show.



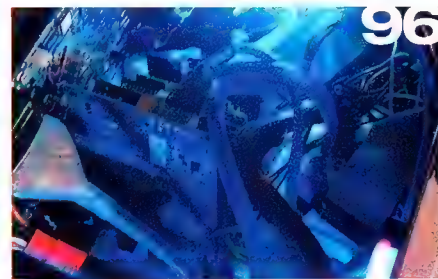
▲ Radiator Mod Part 2

Ron Prouse continues his melding of PC and car. All he needs to finish is to steal a Porsche badge.



▲ Input Output

Daniel Rutter is the tech lexicon. Or texicon, as we like to call him. We also call him Harold.



▲ Hotbox

Hotbox. It's considerably better than Scottbox, which would just be a sweaty cricketer's protector.

DO YOU NEED HELP?

Stuck? Always wished you could achieve something but didn't know how? Wish you had a handy guide just sitting there to dig you out of a hole? Need new jeans? We can help on all but the last. If you have an idea for our monthly tutes, why not drop Craig a line on csimms@atomicmpc.com.au. Or alternatively you could just write to him, if you're not the line-dropping type.

Leigh Dyer is an inspired man. He's inspired because he's covered one of the seeming blindspots of Linux – DVD ripping. Mind you there's still a lot on post processing on Linux we'd like to see a la VirtualDub or AVISynth on Windows, but we'll see what Leigh pulls out of his magic hat in the coming months. He even shows you how to get it on your PSP, making it more useful than the lifeless lump of plastic it currently is.

Sorry, we're on an anti-Sony binge after the whole Lik-Sang, exploding batteries, overpriced PS3, lying about the competition's consoles, Blu-ray, poor MP3 players, using rendered footage and calling it realtime, Mini Disc, Memory Stick, rootkits thing. In fact Sony has had some very serious problems of late, making us wonder why anyone would trust it anymore. We suppose at least we're thankful they're pushing 'Full HD' 1080p sets now, but seriously, did they have to sue Lik-Sang, leading to its inevitable shut down? It was one of the most useful online stores worldwide for bits and bobs for the hardware and gaming community. Shame on you, Sony. Again.

Ahem. What were we doing again? Oh! Technique intro. Got it. Ron Prouse continues his utterly barney car radiator mod, making the big guns work hard for him, and

in turn, you. There's nothing better than the feeling of strapping a huge chunk of metal to your PC, except possibly the feeling of strapping a huge chunk of *finned* metal to your PC. Ron is seriously this decade's Leonardo da Vinci, perhaps crossed with an asylum's worth of insanity patients.

Daniel 'Hermonie' Rutter plances through your testing tech questions, answering with text-book precision and lashings of wit while he's at it, throwing a Logitech mouse to the asker of the curliest conundrum. He covers swapping out invertors in TFTs, the once maligned and now forgotten Plug-n-Play, DVD burning myths, crazy locked optical drives and just as locked masses of video files, and how to perm your hair using only a transistor and a small scaled weasel. Well, maybe not the last.

Then of course there's Hotbox. Hooootbox. Where are our Hotboxes? It seems the uber creative ones have largely dried up, leaving us with the usual boring window, CCFL and baybus deal. Get racking inside those brains and show the world a masterpiece! Someone build us a 2000:1 scale entire replica of the station from 2001: A Space Odyssey. Now. With sparkly lights and a HAL voice. That rotates.

With cheese. We like cheese.



Video encoding with MEncoder

Leigh Dyer runs us through the open source alternative to MPlayer

Video encoding isn't something you'd expect Linux to be any good at, but it's actually a bit of a champ these days. With the right tools, you can take just about any video and convert it in to just about anything else. That includes encoding for devices like the PSP, but before we get into that, I think we need to rip in some DVDs.

DVD ripping with MEncoder

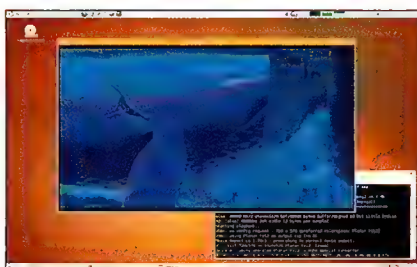
Everyone loves MPlayer, the dead-simple video player that handles just about everything. Its cousin, MEncoder, is just as handy, converting just about anything into any one of a range of output formats. You can find MPlayer and MEncoder packages for most distributions these days, though few ship with them by default. On Ubuntu, they're both in the 'multiverse' repository (as 'mplayer' and 'mencoder'), though even then they don't support encrypted DVDs until you run the following script:

```
sudo /usr/share/doc/libdvdread3/examples/
install-css.sh
```

You should then be able to play DVDs with MPlayer:

```
mplayer dvd://1
```

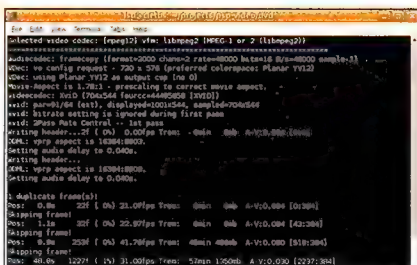
The number is the title on the DVD to play – if this doesn't play the movie you're after, try changing the number until you find it. With MEncoder, you can encode straight from the DVD once you have specified the encoding parameters:



▲ MPlayer can read DVDs directly, and so can MEncoder.

```
mencoder dvd://1 -ovc lavc -lavcopts
vcodec=mpeg4:vbitrate=800:autoaspect -oac copy
-o dvdrip.avi
```

A basic DVD rip, in this case using MPEG-4 video with a bitrate of 800Kb/s, really is that easy, though the quality won't be great. You can boost the bitrate to improve it, though that of course produces a larger file. There are other ways to boost quality though,



▲ MEncoder isn't pretty, but it does show all the important stats as it runs.

mainly at the expense of encoding time.

The first step is to crop out any black border – most DVDs, especially movies, seem to have some amount of dead space. You can use MPlayer to determine the size of the actual movie content:

```
mplayer -vf cropdetect dvd://1
```

This checks for borders as it plays, and prints a 'crop' filter command-line that you can use to remove them. To boost quality, we'll switch from the generic MPEG-4 codec to XviD, and enable some high-quality options:

```
mencoder dvd://1 -ovc xvid -xvidencopts
bitrate=800:autoaspect:vhq=2:bvhq=1:chroma_opt:
quant_type=mpeg -vf crop=704:544:8:16 -oac copy
-o dvdrip-xvid.avi
```

You should notice a huge improvement in the video quality, though it may take about three times longer than the simple MPEG-4 case. Pushing past XviD, there's H.264, the new MPEG-4 Advanced Video Coding (AVC) codec. The x264 project has an open-source implementation of H.264, and the Ubuntu MEncoder packages include support for it out of the box, so you just need to change your encoding options:

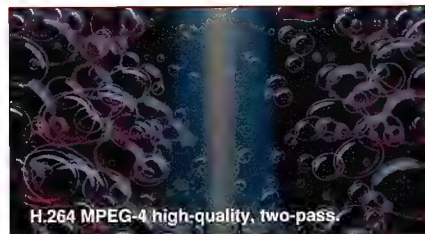
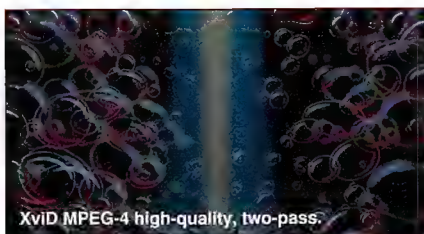
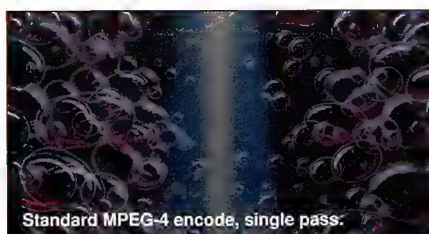
```
mencoder dvd://1 -oac copy -ovc x264 -
x264encopts bitrate=800:subq=5:4x4mv:8x8dct:
frameref=2:bframes=3:b_pyramid:weight_b -vf
crop=704:544:8:16 -o dvdrip-h264.avi
```

Although x264 does great work, it takes about twice as long as our XviD setup. Another way to boost quality with both XviD and x264 is with two-pass encoding. The video is literally encoded twice: once to gauge the complexity of the video through the file, and a second time using that information to vary the bitrate. This can make a big difference to the overall quality, particularly in complex or fast-moving scenes. Use the 'pass' option to enable two-pass encoding:

```
mencoder dvd://1 -oac copy -ovc x264 -x264encopts
bitrate=800:subq=5:4x4mv:8x8dct:frameref=2:
bframes=3:b_pyramid:weight_b:pass=1 -vf
crop=704:544:8:16 -o /dev/null
mencoder dvd://1 -oac copy -ovc x264 -x264encopts
bitrate=800:subq=5:4x4mv:8x8dct:frameref=2:
bframes=3:b_pyramid:weight_b:pass=2 -vf
crop=704:544:8:16 -o dvdrip-h264.avi
```

You may have noticed that we haven't specified any audio encoding options. All we've done so far is copy the audio stream straight from the DVD. With AC3 surround audio this works very well, but if you don't want

QUALITY COMPARISONS



surround and need to keep your files small, you can encode the audio to MP3. Replace the '-oac copy' flag with '-oac mp3lame -lameopts vbr=3':

```
mencoder dvd://1 -oac mp3lame -lameopts
vbr=3 -ovc x264 -x264encopts bitrate=800:
subq=5:4x4mv:8x8dct:frameref=2:bframes=3:
b_pyramid:weight_b -vf crop=704:544:8:16 -o
dvdrip-h264.avi
```

Encoding for the PSP

Sony's PSP makes a neat little media player, even if it is picky with its video formatting. You need to get the codecs, resolution, frame rate, and other parameters just right, but with the proper tools it's not too tricky.

The easiest option is to use the aptly-named PSP Video Converter (pspvc.sourceforge.net), a handy GUI app that handles the details for you. Grab the source code download from the site to your home directory and run the following commands to install it:

```
tar zxvf pspvc-install-0.2.1.tar.gz
cd pspvc-install-0.2.1
sudo ./install.sh /usr/local/
```

When the build completes you can run 'pspvc' from the command-line. The GUI is quite straightforward: select your source video file, put in the title (which is displayed on the PSP), and set the aspect ratio, file format, and audio/video bitrates before hitting 'Convert'.



▲ PSP Video Converter makes the job almost too easy.

If you want more control, you can use another command-line encoder called ffmpeg. Distribution packages of ffmpeg are often out-of-date, so we'll be building it from the code in its Subversion repository, where all the very latest changes are stored. We'll also need FAAC, an AAC encoder that's probably already in your distribution ('libfaac-dev' on Ubuntu), and x264.

Install Subversion (the 'subversion' package on Ubuntu) and run the following commands:

```
svn co svn://svn.videolan.org/x264/trunk x264
svn co svn://svn.mplayerhq.hu/ffmpeg/trunk
ffmpeg
cd x264
./configure --enable-shared
make && sudo make install
cd ../ffmpeg
./configure --enable-faac --enable-x264 --enable-gpl
make && sudo make install
```

If you haven't install anything from source before, your system may not know to look in /usr/local/lib for shared libraries. Add '/usr/local/lib' to your '/etc/ld.so.conf' file, and run 'sudo ldconfig' to refresh your library cache. You should then be able to run ffmpeg. A good test is to run 'ffmpeg -formats': this lists every codec at your disposal.

Here's an example command-line for encoding a video to a PSP-compatible MPEG-4 file:

```
ffmpeg -i myvideo.avi -acodec aac -ab 96 -
vcodec mpeg4 -b 512000 -ar 24000 -s 368x208 -r
30000/1001 -title "My Video" -f psp M4V10001.MP4
```

To use this for your own videos, just change the input name, the title, and the output filename, and change the resolution to 320x240 if the input has a 4:3 ratio. The output filename should be in the same format though: you can change the number in the middle, but it has to be five digits, with 'M4V' on the front and '.MP4' on the end.

To play this on your PSP, you need to mount your Memory Stick somehow. A USB cable from the PSP to your PC should do the job, as should a USB card reader. Either way, your desktop should automatically mount it for you. Create a folder called 'MP_ROOT' if it doesn't exist, and another called '100MNV01' under that.

If you need a smaller file size but don't want to sacrifice quality, you can switch to H.264 encoding:

```
ffmpeg -i myvideo.avi -acodec aac -ab 96 -vcodec
h264 -b 256000 -ar 48000 -mbd 2 -coder 1 -cmp 2
-subcmp 2 -s 368x208 -r 30000/1001 -title "My
Video" -f psp -flags loop -trellis 2 -partitions
parti4x4+parti8x8+partp4x4+partp8x8+partb8x8
MAQ10001.MP4
```

Not only are these files named differently, starting with 'MAQ' instead of 'M4V', but they go in a separate folder on the Memory Stick under the 'MP_ROOT' folder, called '100ANV01'.

And that's how you encode video in Linux. Have fun!



FUN WITH YOUTUBE

YouTube is great fun, but having to play YouTube videos through a browser isn't always convenient. With the handy-dandy youtube-dl script, available from www.arrakis.es/~rggi3/youtube-dl you can download the videos as Flash Video (.flv) files.

You can play these with MPlayer, or use MEncoder or ffmpeg to convert them to AVI or MPEG-4 files for more convenient playback on PCs or your PSP.



▲ The whole world's going down the (you) tubes.

HARDWARE TUTORIAL

Technology
From TheCool your PC with
a car radiator Part 2Ron Prouse finishes off his hybrid PC/vehicular
cooling contraption from last month.

Suppliers

PC Case Gear www.pccasegear.com

- 1x Scythe SFF21D 120mm Fan, \$29.95

Eastside Performance, 55 Oaklands Rd Somerton Park SA, 08 8294 2933

- New copper / brass heater core, unknown application, \$20
- Supply and fit 1/2" barbs \$15

Disclaimer

Whenever you pick up power tools, cutting and grinding instruments, or even a can of spray paint, you are putting your general wellbeing at risk from some form of industrial level accident. We take every precaution by wearing appropriate safety equipment, using tools with respect and within their limits, and by not inhaling the contents of glue and paint containers. We suggest that you should follow a similar regime, and seek professional assistance and guidance if you are attempting a task outside of your skill set.

NB: Atomic and staff are not responsible for your safety or longevity. Or the hair on your cat remaining one colour.

If you haven't already checked out the first part of this tutorial, then do so! Grab a copy of *issue 70* and read part 1 – it'll explain the basics of water-cooling and radiators so the rest of this tutorial makes all the more sense.

Once you've done that, you'll be ready for this part, where we put the radiator and fan together to create the ultimate in PC cooling, short of sending your system to the North Pole via catapult.

- 5** After cleaning up, or bending up, the basic three-sided enclosure, the centre-point for the cooling fan is marked and a suitable-sized hole cut out with a jigsaw.

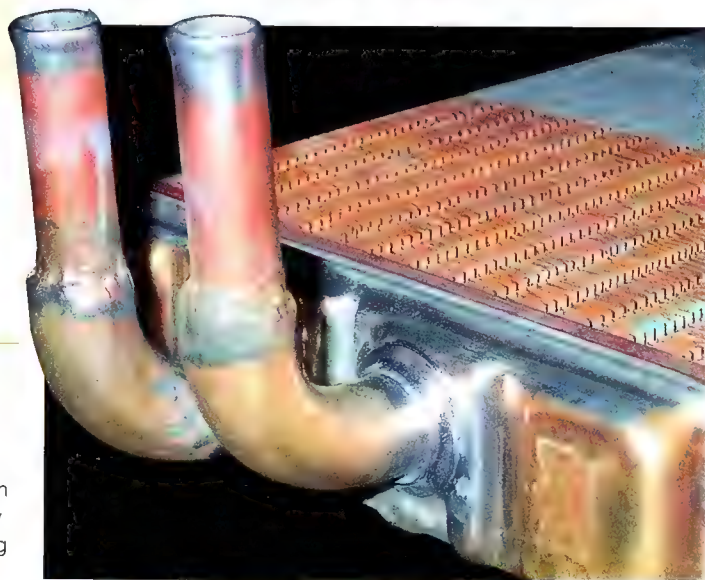
The main thing to observe is that the shroud should not sit flat against the body of the core, there should be at least 10mm of clearance between the two. The shroud will then act as a funnel, channelling air from the very outer edges of the radiator core into the exhaust fan opening, and utilising all of the cooling fins to their optimum advantage. Once in position, the sides of the shroud were drilled so they can be attached to the side-supports on the core.

The four fan mounting holes were then marked and drilled, and the shroud sanded back ready for primer and top coat.

- 6** The trickiest part of modding a radiator is getting the plumbing right – although most of the headaches can be avoided right back at the time of initial selection. Most heater cores will have 19mm OD connections, which can be sleeved down to a usable size – 13mm (1/2") being the most common size used for performance water-cooling – without too much trouble, however trying to reduce down more than 3 to

4mm becomes a convoluted project of multiple sleeving and leak testing. If the core that you are considering has large(ish) connections, re-think whether the amount of effort involved is actually worth it. One work-around that can help is to modify other cooling system components to help in the conversion. For example, use a larger intake barb on the pump, or line-out on the reservoir, and then use larger tubing between them and the radiator. Using a 19mm supply tube between a radiator and 13mm pump has actually been proven to assist output performance.

In this instance, the existing 19mm OD pipes were cut down, and then the collets and fittings heated until the solder melted and they could be re-aligned. The next step was to sleeve down the fittings from 19 to 13mm, using copper tubing braised into the existing tubes, building up the weld to fill-in the 1.75mm gap around the perimeter. Once in their final position, the joints were sweated with fresh solder and tested for leaks. It may not be pretty, but it works, and it can always be painted, or hidden, later.



- 7** Depending on the placement and orientation of the final fitting, this step may not be relevant to your particular project. After painting the shroud and the radiator tanks, the fan can now be fitted and the two main components assembled, with 1/8" pop rivets being our method of choice.

As a top-mount intercooler, the radiator could now be assembled into your case using the fan screw-holes as the mounting points, and the fan exhausting case air to atmosphere through a top blow-hole.

The other popular orientation is the one that we will be using, which is to have the radiator placed at the front bezel, with the fan drawing fresh air through the core and into the case. This will require a couple of additional



steps to complete. Firstly, the core needs to be protected where it makes contact with the case chassis. Two strips of high-density, rubberised foam are positioned at the top and bottom of the core, and held in place with hot glue.

The second step is to add some brackets down each side of the assembly to act as mounting points. Two sections of L-profiled aluminium stock, 25x13x150mm for this application, were cut to length, and attached to the front face edge of the shroud using epoxy glue and pop rivets. The brackets should be fitted so that the leading edge protrudes forward slightly, to allow for a slight clearance between the core and the inside of the case front. For aesthetics, the fins of the core that will be visible were 'dusted' with fine coat of aluminium spray paint. With any radiator, performance will be affected if thick surface coatings are applied, as it will reduce airflow and detract from the thermal hook-up.

B And so you have the final outcome from an internal perspective, although a wire fan-grill will be added into the final configuration.

The cooling mechanism is only a single 120mm fan however the surface area is a respectable 261cm², compared to 138cm² of a Black Ice GT Stealth 120, or 236cm² of the GT Stealth 240.

Smoke testing using burning paper showed the shroud to be an effective funnel, pulling air through from the very edges of the core at flow rates similar to those at the centre. From the 'custom build' viewpoint, the assembly is a snug and neat fit into the bottom section of a Cooler Master Stacker 830 case.

Overall, the concept of using a corroded, second-hand automobile component in a sparkly-new, high-performance PC goes against our better judgement. That said, using brand new spare parts that can be easily modded to achieve a custom design at a reasonable cost should appeal to everyone.

As per usual, it all depends on how it fits into your own value system! 

RADIATORS ARE COOL

Originally, radiators were simple networks of round copper or brass tubes, (which eventually were switched to oval tubes because they were slightly more efficient) with flat plates used as fins to gain more cooling surface area. These attributes have evolved over the years, with the major improvements being the adoption of multiple-pass cores that allow for a less restrictive flow, and high-density fins that dispel more heat.

Radiators are great in that not only can they be used to keep things cool, but warm as well. Using the same process to transfer heat away from an engine, water can be used to take warmth from a furnace or burner and siphon it through to a house radiator, when convection takes its natural course, heating the cold air. In Ancient Rome, entire rooms could serve as radiators – the walls and floors would contain gaps which would be filled with hot air or water. The design was known as 'hypocaust'.



An exposed hypocaust. The small pillars would support the floor, allowing warm air to fill the space and supply the room with heat.



INPUT OUTPUT

Fixing stuff no one else can, including God and your mum

lotas of tech

Daniel Rutter is tricky because he can trick things into working again. Let him play a trick on your stuff at io@atomicmpc.com.au

Well there's your problem

I recently bought a 24" Dell monitor (2407FPW, manufactured June 2006) from the Gray's online auction website. It was sold as a factory second and thus not under warranty. When I try to switch it on the indicator light blinks on and off and nothing else happens.

I took it to a repair shop. They told me it has a faulty inverter board. They tried to obtain a new part from Dell but were told that Dell does not sell these items separately. I have tried contacting both Gray's and Dell for advice but I was given the brush-off by both.

I am wondering whether it is possible to obtain one of these inverter boards from somewhere else, or do I take this as an expensive lesson and throw this thing in the garbage? (Er... dispose of it in an environmentally friendly fashion?)

Mukesh Kurban

their desk and treads on it, or confidently slams their laptop shut when there's a pen still sitting on the keyboard, that's another supply of spare parts ready to be cannibalised by the Jaws that keep the world of skinflint computing turning.

There's a good chance a 2405FPW inverter will work fine in a 2407, and it's also possible that the board from a smaller monitor will work, though I'm not making any promises.

Find out everything printed on the inverter board and check for matches from other models of monitor, set up a Favourite Search on eBay with email notification, and wait. Sooner or later, you ought to have a solution.

Unplugged

I turned Plug and Play off in msconfig under Services and the frame rate almost doubled in Spellforce! The hitch is there is no sound. I'd like to have my cake and eat it too. Please help.

Brett Stokes

Welcome to a pretty common situation.

It's not hopeless, though, because the absence of spare parts outside Overpriced Authorised Dealer Networks creates enough demand that people 'part out' busted devices of all kinds and sell the bits - often on eBay.

Every time someone knocks their monitor off

If you can't find a replacement board on eBay, you could always solder one up yourself.

It's odd that you got *that* much benefit from turning off the Plug and Play (PnP) Service, but it's not surprising that you got some.

Unfortunately, I'm afraid you're probably not going to be able to have the speed boost and sound.

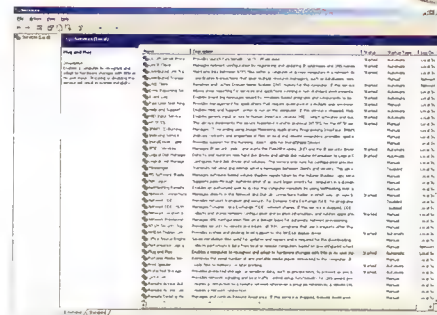
The PnP Service is confusing. For a start, people confuse it with the Universal Plug and Play Service, which is, obviously, entirely different. Microsoft also tells you that stopping PnP will cause 'system instability', when

that's not really the case. And, most importantly, PnP doesn't actually do quite what you'd expect it to.

The Plug and Play Service does, as you'd expect, handle stuff like making USB devices show up when you plug them in. But it also handles things that are always connected, like modems and (drum roll) sound cards. No PnP means you can kiss your audio adaptor goodbye.

I/O OTM wins a Logitech G5!

More mouse than you can poke a stick at. Or a rather large car covered in chocolate milk.



Disable them all! What could go wrong?

Despite Microsoft's warning, though, you don't actually profoundly screw up Windows by disabling the PnP Service. Lots of locked-down office boxes have PnP disabled, and they work fine. But they have no sound.

If your sound card's drivers hit the CPU hard for multichannel positional audio, then you could indeed see considerably better frame rates in some games with sound off.

Maybe the change comes from something else, though. See if there's anything else that isn't working with PnP disabled, then re-enable the Service and disable those other things manually in Device Manager.

I'm not optimistic, though.

Faster, Fifi, faster!

My comrade and I have had recent discussions regarding appropriate burning speeds to obtain maximum longevity and accurate preservation of data.

I argue burning at 1x will ensure data will be written most accurately to DVD media, thus providing absolute longevity of data and the media used.

I/O OF THE MONTH

Don't be rude to old voodoo ladies

I have two problems on two different machines.

Firstly, on my new Core 2 Duo, when I open a folder that has some video files, Explorer starts to read the resolution of the files (in the 'Details' view) and then crashes and spits out an error:

'The instruction 0x<insert random hex numbers> referenced memory at 0x00000000. The memory could not be "read". Click OK to terminate program. Click CANCEL to debug the program.'

This happens whenever I access a folder full of videos but does not happen if the videos are inside subfolders. I have minimised the issue by going into the folder properties and changing the 'folder type' to Documents. This way the resolution is not read every time I access the folder. However the problem still occurs sometimes when I access a large folder with lots more video files.

Is there a way to solve this? One online article I found says it's something to do with motherboard or RAM, but I don't think that's the case here.

The second problem is on my old Socket 754 Athlon 64.

I wanted to put a clean install of Windows on so my mum can use it for Internet browsing, but when the installer gets up to formatting the drive, the whole screen went corrupt. So I thought the hard drive had bad sectors, and I swapped it for another one I bought around the same time. This time the drive formatted correctly, but when the installer

got to the copying-files stage, it froze.

After that, the old Sony CD-ROM drive didn't open any more – the eject button responded, but I could hear the drive try to open the tray but fail.

So I thought the CD-ROM had died. I rummaged around and found an old CD-RW. It initially worked, which was great! Then the installation was stuck again at the file copying stage. And when I tried to eject the tray, the drive was stuck AGAIN.

Now this can't happen three times in a row, I thought, so I pried the drive apart and recovered my installation disk. I changed IDE cables and used a different power connector and plugged in an old Mitsubishi 36x CD drive which used to work wonders on cracked and dirty CDs. This drive has got to work. Especially as I've now changed the cables too.

But my hopes were shot down once again when the file copying stage froze and the drive became stuck.

Oh by the way, the drives do not get 'unstuck' even after a restart or a shut down and power up after some hours, which is strange.

Jordan Xu

O The stupid-sounding 'memory could not be "read"' error is actually pretty generic, and can indicate all kinds of problems. But given the situation you're getting it in, my first guess would be that Windows Media Player is unhappy (www.tinyurl.com/jounn).

If not that, then God knows what. Maybe DirectX is broken, but I'm guessing. It's a software problem though otherwise other things would be failing.

A CD or DVD drive should always eject its disc if you press the eject button while the drive

is powered up but not connected to anything with a data cable, or if it's connected to a PC, but has only just powered up. Failing that, you can eject the disc with the drive turned off by poking something like a straightened paper clip into the little hole on the front; you don't have to take the drive apart.

When an optical drive's plugged into a live host computer, that computer has to respond to an eject request itself. It won't do that, if one of a number of things is screwed up.

Why on earth your drives are getting stuck and staying that way even after being power cycled, I do not know. All I can think of is something very, very strange is wrong with the install CD itself.

If that isn't the problem – or isn't *all* of the problem – then it sounds like something's wrong with some of the remaining hardware. Maybe the PSU, because a bad power supply can cause all kinds of bizarre problems, but otherwise I'd guess CPU or RAM, though a half-toasted motherboard chip could also be responsible.

If you're lucky, there's just something that isn't quite sitting right in its socket. If you're not, then in the process of fiddling with the computer you've taken inadequate anti-static precautions at some point and damaged one or more chips.

Unfortunately, if reseating the RAM and CPU and cards doesn't work, there's no way to find the culprit without swapping out components. And there's still that weird, weird, weird stuck-drive thing.

It's like someone up there doesn't like you.

Come clean. You've been robbing Egyptian tombs, haven't you?

My comrade believes that using a high quality DVD writer, media and software (maintaining recommended firmware/software updates) should allow you to burn at a reasonable speed, like 4x, without reducing the quality of the burn or lifespan of the data compared with writing at a lower speed.

To what extent does the writing speed influence the quality of the burn and lifespan of the disc?

Woody and Slothman

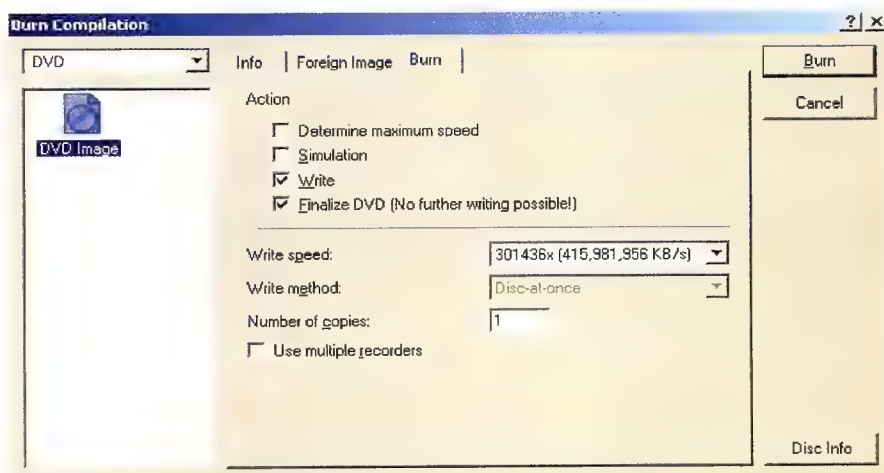
O No, burning at 1x doesn't help. But there are still, often, good reasons to use less than the maximum burning speed.

Back when CD burners were pretty mature but DVD burners hadn't turned up yet, there already wasn't any reason to slow all the way down to 1x, unless you were burning an audio CD in a drive that made funny sounding discs when you burned faster.

Today, DVD burners that can do 12x or better may indeed shoot those zillions of little holes in a disc's dye layer a bit more accurately if you

run the burn at a lower speed, but none of them seem to give you any advantage if you slow down below 4x, unless of course you're using old and/or dodgy discs.

You don't get any disc longevity advantage from burning slower, either. Disc life is largely determined by how fast the organic dye rots away.



▲ Sometimes, the software makes its own speed suggestions.

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RUNNERS UP ▼ RUNNERS UP ▼ RUNNERS UP ▼ RUNNERS UP ▼ RUNNERS UP

Brockies' Bio-Beast ▼



technical details

- AMD Athlon XP 2400+
- Epox 8K3A+ motherboard
- 512MB DDR333 Kingmax
- Leadtek NVIDIA GeForce4 4200Ti
- 2x 40GB Maxtor 7200RPM, RAID
- Antec TruePower 380W

Gavo's Lian-Li v1000 ▼



technical details

- AMD Athlon 64 3200+ @ 2.2GHz
- ViewSonic VX-924 3ms 19" LCD
- ASUS A8N-SLI Premium
- ASUS EN7800GTX PCI-E
- 1GB Corsair PC3200XL XMS Xpert CL2 @ 440MHz

Overseer's SUB-PC ▼



technical details

- Intel Celeron 2.4 GHz
- ASUS P4SGX-MX motherboard
- 512MB RAM
- NEC 2510a DVD burner
- 160GB HDD
- 430W PSU

hotbox OF THE MONTH

HOTBOX



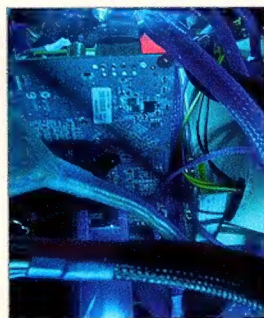
Jehu's Ammo Box

This case started about three years ago when I wanted to mod something different. I first saw this case at the local tip and thought the '59 303 case would be perfect.

I cut the indent out of the lid and installed the acrylic window out of an off-cut that Dad bought in Papua New Guinea 20 years ago (never throw anything away). I cut two holes in the base for the motherboard tray and PSU so the cables now come out the bottom of the case. After painting the outside with hammer tone charcoal, I sprayed the original labels on using hammer tone blue as well. Clasps, hinges and handle brackets were sprayed hammer tone blue. Two momentary switches with missile covers also replace the power and reset buttons.

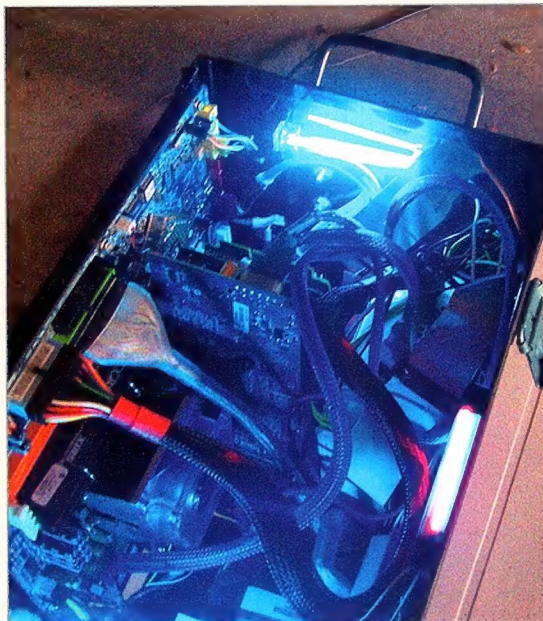
And yes; the feet are .50 shells that were fired in the Persian Gulf.

Jehu



technical details

- Intel Pentium 4 3.0GHz @ 3.6GHz
- Gigabyte K8NS-Ultra 939
- 1024MB Corsair 3200 XMS
- ASUS GeForce 6800 128MB
- Creative SoundBlaster Audigy 2 ZS
- Active Cool AC4G-D



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FALLOUT

Funnies and humour from the fallout zone

Do not attempt slipstreaming after a curry.

“Like building a Tardus, getting that perfect, working install is next to impossible.”

had fallen prey to a raging bush fire or ignited circus hoop. This thought in turn made me remember that neither the phoenix nor Alf had anything at all to do with slipstreamed Windows installs and so it was with willpower that I turned back to assess my own failed attempt.

Or should I say 'attempts'.

Slipstreaming isn't easy, even with tools designed to make it so. Like building a Tardus out of two planks of wood and a photocopied blueprint from the *Fortean Times*, getting that perfect, working install is next to impossible. Only with the help of a virtual PC and quantities of time best left to the depths of chronology can one truly expect to wield a working, completed ISO.

Once you add in the precious hours of your life you'll discard to this compassionless creature doing extended testing of the installed OS in prime time, better ways of spending one's spare moments – say, sleeping on a bed of honeycomb covered in bees or throwing rocks at a pack of hungry timberwolves – become apparent.

I suppose slipstreaming is something only the truly hardcore geek has the patience and fortitude for.

For the rest of us, it's time to stop when you start contemplating ways of slipstreaming pizza, Coke and your own expellant into your install.

Caught in the stream

Logan Booker slips into the currents of the perfect Windows install.

There was an explosion and now I hate slipstreaming.

Okay, the explosion wasn't actually an explosion in the typical sense. It didn't emit flames or suck the oxygen out of the air. It didn't even make a noise, except for that little Windows ding that lets you know a dialog has popped up.

The explosion/dialog informed me that my attempts to incorporate the .NET Framework into my Windows XP slipstreamed install had failed in a most ungracious manner. Instead of installing the Framework into the re-compiled Windows build, it had decided to execute the setup, on my system, in the middle of the

slipstreaming process.

What a quaint thing for it to do, I thought.

And then I wanted for some powerful reason to be mad – not as mad as Alf Stewart seems to be with those flaming kids and great galahs – but just mad enough that, if pushed, I might be tempted to set something on fire.

This got me thinking of flaming great galahs, and how it was quite possible that Alf had at some point become the only living human in history to bear witness to the legendary phoenix of Egyptian mythology.

Alf's limited grasp of Egyptology – and probably ornithology – meant he'd identified, incorrectly, the creature as a native bird that

PERFORMANCE PCS

Atomic made the bold decision to do a super job of our performance PC round-up, which is why you will see it next month instead of this month.

ONBOARD AUDIO VS CREATIVE

Is there really any point to investing in a sound card these days? We see how far onboard has come and if it can compete with Creative's costly hardware.

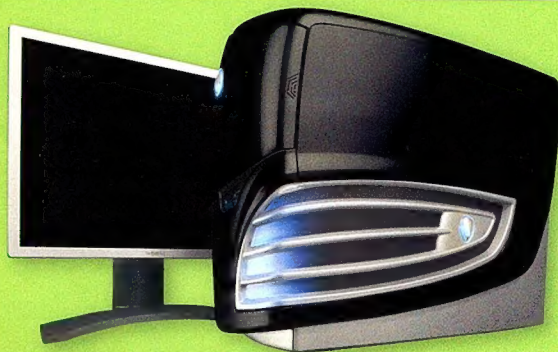
COOLERS ARE US!

We haven't done it in a while and now is finally the time. Atomic gathers all manner of CPU coolers and runs them through heat, heat and more heat.

ETHERNET OVER POWER

Who needs Cat5 cables when your home power cables will do the job just as well – if not better. We take a look at the inner workings of this very cool technology.

NEXT MONTH



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"... I honestly did not expect this kind of performance! And as long as the price is right, this card can outsell a lot of other cards and it will." **Hilbert Hagedoorn, Guru 3D**

"...it really shines when placed besides its price rival from NVIDIA, the GeForce 7900 GS." **Vincent Chang, Hardware Zone**

"PowerColor's ATI X1950 Pro-based card is an excellent add-in all around, with plenty to offer considering its very competitive price point." **Lars-Göran Nilsson, Reg Hardware**



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